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Resistance is futile

A recent New Yorker article titled “The pointlessness of unplugging” was the source of much debate and heated discussion this month at Digit. The article was centered around an annual event which urges participants to abstain from the use of technology for a whole day. In essence, you are to wrench yourself away from phones, tablets, computers and televisions – basically anything that’s connected – and throw yourself into a self-imposed digital exile of sorts. Sounds horrifying? To someone like me it doesn’t sound horrifying per se, but absurd, and pointless for sure. Before I get into the “why”, let’s first understand more about this emerging sub-culture.

As it turns out, people have been going on these detox adventures for quite some time. I remember marvelling at Paul Miller’s “year without the internet” experiment which he notably did as a staff writer at The Verge (still haven’t figured out how that worked). The few videos I saw before the experiment started getting boring, had an underlying sentiment that wasn’t very positive. The experiment had its highlights sure – he finally undertook the road trip he always wanted to take to see his little nephews and nieces – but overall, I felt Paul started getting increasingly despondent. Only subtle hints alluded to this of course, but I wouldn’t be surprised if at the end of the year he went on to proclaim that the experience was “enriching” or “fulfilling” or some other such adjective. But I wouldn’t buy into it.

I’ve observed that digital abstinence drives are mostly undertaken with unclear objectives. Some see the time spent in the digital world as a waste and therefore desperately want to “reclaim” control over the time-sapping void that is the internet. Sure, if all you do online is watch Justin Bieber videos and giggle at 9GAG posts then yes, you not only need to detox but also sign up for rehab. But if you’re spending your time productively interacting with people and enriching your knowledge, I don’t see why the digital life you lead should be considered inferior to the time you spend doing those same things IRL (in real life). Also, unpluggers don’t unplug for so called benefits of unplugging but rather

the kick they’d get from a triumphant return. Such messages, ironically, aren’t uncommon on our timelines: “Just spent a week away from Facebook. Wow so refreshing. Did you miss me?”

Robert is all for taking breaks from technology, and in fact argues that digital dependence can be crippling. If you asked me how many phone numbers I remember off the top of my head, I’d be embarrassed to tell you the answer. On a daily basis, facts, figures and important information also admittedly slip through the cracks these days. Instead what’s remained is a selective memory and neural pathways that itch to find a search bar. But can “breaks” from technology really improve our mental prowess? The only purpose such detox trips would serve is give you a greater appreciation of technology for whence you return to it. Much like what Vipassana does or is supposed to do for the soul.

Don’t get me wrong. I’m all for spending time with family, having a nice sit-down dinner with conversations rather than a zombie supper in front of the idiot box’s glow. Or being in the moment and enjoying a rock concert rather than tweeting about that “killer guitar solo” I just saw. But there’d be no greater folly than to take this technology abstinence a step further and cloister yourself from it entirely. There’s no pride nor should there be any in being a self-proclaimed luddite. Like the New Yorker article said, “We are only ever tourists in the land of no technology, our visas valid for a day or a week or a year”. Nothing more. 



Siddharth Parwatay
Assistant Editor

siddharth.parwatay@thinkdigit.com

“Can breaks from technology really improve our mental prowess?”

A handwritten signature in black ink, appearing to read 'Siddharth'.

Got feedback about this column?
Drop me a line at:
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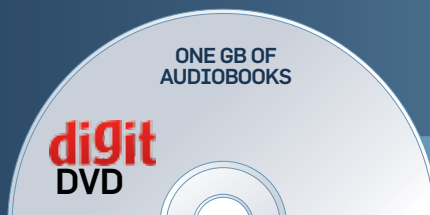
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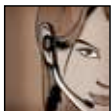
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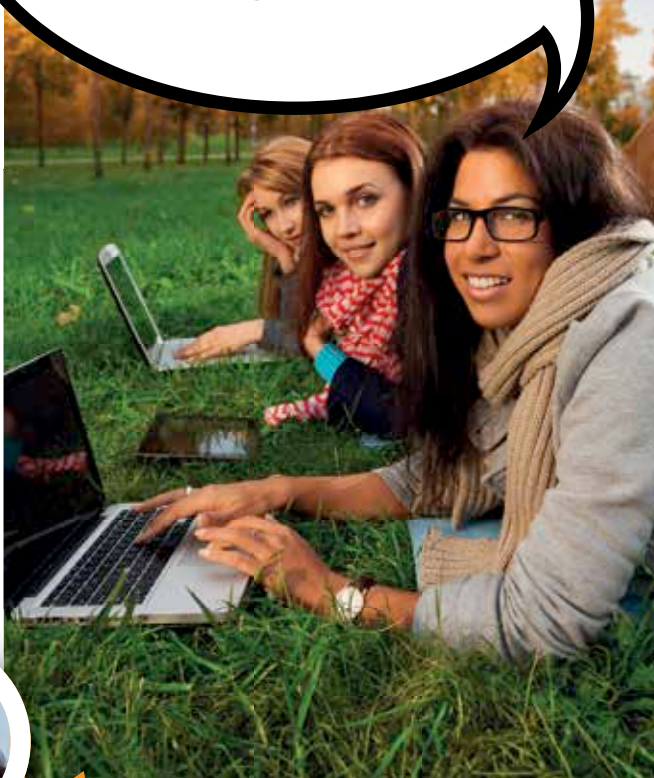
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**DRAM price fixing**

A court settlement of \$310 million has been reached between many DRAM manufacturers accused of fixing DRAM market prices. <http://dgit.in/PriceChor>

✉ Dear editor,

I'm a regular reader of Digit and have always liked how you simplify technology. Like me, many readers must be fascinated by the way you work and would really like to know what happens behind the scenes and how you manage to publish all the great things that you do. Hence I have a suggestion for you.

You could choose one lucky winner from your subscriber base each month to visit your office for one day. We would surely like to meet you in person and learn much more. And also if all goes well, more readers would start subscribing to the magazine to get a chance to visit your office.

Being from an IT industry, I have a fair idea of how tight deadlines can be but it would be nice if you could make this happen. Waiting to hear from you.

-Mandeep Jain

Great suggestion Mandeep. In fact as part of the privileges of being members of Digit Squad, many of our most die-hard fans have exclusive access to our test labs. To join simply drop a mail to editor@thinkdigit.com and we'll take it up from there. As for getting a glimpse into life here at Digit, I'm sure you must be getting some clues of the craziness through Digit Diary.

-Siddharth

✉ Hello Digit!

I've been reading Digit since the past 4 years and this is my first letter. I accept Digit as India's No.1 Technology Magazine.

I truly appreciate each and every hard working team member of Digit for bringing new concepts and variety, and exploring new ideas every month. I've never come across any major negative point in the 4 years I've been reading the magazine.

The reason I'm writing in is the March 2014 issue itself. I couldn't stop myself from expressing my feelings to you, friends! The March issue is the best issue I've come across. The "Top Ten of Everything" is an amazing concept. The issue helped me a lot. I was quite confused about which device to buy for under 13K. It was the March issue that helped me buy the best device. I brought a Moto G. I truly thank the Digit Test centre – especially Kunal Khullar and the testers in the Smartphone section – from

Feedback for the March 2014 issue of Digit



the bottom of my heart. Kunal Khullar has explained everything about the Moto G excellently. Another plus point for Digit is the DVDs that are offered with each issue. I've learnt many things through the DVDs. I love the TED Talks, and Digit TV was awesome! Truly a new and rocking concept.

Last, but not the least, the Fast Tracks and the official website of Digit is quite cool. The best Fast Track I've come across is the November 2010 'Fast Track to Windows 7', which was very useful as I'm using a Windows 7 laptop. Keep up the good work and continue spreading knowledge. And remember, you guys are the best technology navigator ever. Thank you!

-Praveen Viswakarma

Thanks Praveen, we're glad you like the DVD contents and we were hoping the March issue is a runaway success as we were trying something new and guess what, looks like it worked!

-Siddharth

✉ Hey Digit,

I've wanted to write to you since a long time and finally got the chance now that my academic year is over. I first came to know about this magazine during a computer fest in our school, which you sponsored. You guys were distributing 2-3 month old issues for free. I somehow obtained 4 different

issues and when I got to reading them, I discovered that they were pure genius. It was like ambrosia for a geek like me to read about this sort of stuff, which I could rarely discuss within my friends circle.

After that, I bought the 2013 Collector's Edition and had a great time reading it. To me, it seems that you guys can never run out of catchy cover pages and ever-amusing cover stories. I bought the March issue after that and boy, was it a delight. This was the first time I had read the whole magazine, cover to cover, in just a few days. I especially loved the cover story but beg to differ about the list of top smartphones.

But the other lists were pretty awesome. I especially loved the Mobistar prank in the Top 10 Trolls list, Dangerous Dave and Snake in the Top 10 Games list, 'Nokia Fakes Ad' in the Top 10 Controversies list and the hilarious Sim City and Yahoo! Mail in the Top 10 Tech Fails.

The article on smartphones under 20K was pretty cool. I want to especially thank you for your good reviews of Moto G in your past issues as I wanted to buy the phone but my dad wasn't very enthusiastic about it. Your brilliant articles on the phone convinced him and now I finally got the phone.

I adore and laugh at the small bits of news stories at the top of every page. I checked almost each one of them and they were pretty cool but I want to be frank about



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Fastest portable HDD?

Lacie's Little Big Disk is a drive that Lacie claims to be the fastest portable hard drive in the world with transfer speeds of up to 1,375MB/s <http://dgit.in/LacieQuick>



No updates for old cards

Nvidia announced that it will stop releasing graphics driver updates for its older series of cards before the 400 series after a few months.

LETTER OF THE MONTH

✉ *Badaa Tssssss* (if you didn't get that, it's a band salute for your extraordinary work). I mean, yYou guys perform unbelievable feats every day in this extraordinaire magazine. I sometimes suspect that I might find red capes in the wardrobe of every Digit team member. Let me introduce myself. I'm an 18-year-old Engineering student. I haven't subscribed to Digit yet (regretfully). Now, before you send minions to torture me (yes, I think you do have minions.), I want to tell you that I've been buying almost every issue of Digit for years. And whenever I buy a new one, I still act like a happy kid with hands flailing about.

Anyways, I just wanted to discuss some things in this letter (my first letter by the way). Do you guys watch Anime? Now I'm going to go ahead and assume that you do, because the other option is unacceptable. It would be great if you could publish a review on the top animes of the decade, as reading about it from your point of view would be great.

Secondly, congratulations on your helpful videos. You may want to change the settings of your room, as the sound reverberates and it's a little irritating.

Thirdly, how's Robert? He's not

there, is he? Don't tell him but you see, when I first saw his photo and read his page, I imagined him to be a guy with a deadpan sense of humour. Am I right? He's an awesome editor. And it's really great the way Siddharth is handling things. Statically. Pun intended.

Lastly, (relieved, aren't ya?) do you guys like solving codes? Cyphers? Of course you do. It's a really interesting topic. And it would be great if you publish a little something on it. *hint hint*.

I've attached two of my self-made cyphers. Hope you guys have the time to solve them.

Super lastly, don't ever stop Digit, as I fear that I'll tumble in the darkness of life without your guidance. Too much? Okay scratch that. Just never stop being so awesome.

-Shivam



📌 C'mon Shivam you know better than to give us the solution! And your *hints* have been taken under consideration. Look for something in the upcoming special issue. Also, most of the guys in the team are into Anime. It was difficult to reach a consensus but One Piece and Bleach seem to have emerged as the favourites here as well.

-Siddharth

something. In DGT, the only interesting section was the TBA, but the others were okay too. I didn't read much in the Fast Track but I have to tell you, even though I appreciate all the work you put into just one small book, you need to have better topics for the Fast Track. The DVD was awesome! I thank you for offering me with the perfect physics tutor. The wallpapers were pretty awesome and I loved the U.S Air Force theme.

I know that I'm still in school and can't work, so I want to write for your magazine – even if just one small paragraph. No payment. No office. Just me helping you and learning. I'm sure you'll love a geek like me. One more thing: Raaabo is Robert...right? I just can't get enough of this magazine!

-Ayan Marwaha

📌 Well we figured not everyone would agree on our Top 10 lists but that's the whole point. Differing opinions is what makes the Digit community so vibrant. We're glad we could push your dad into going for the Moto G. Lots of people in the digit office too have gone the G way. Yes Raaabo is Robert. Do keep writing in and happy reading.

-Siddharth

✉ Hello!

I'm a 17-year-old girl (yeah, you read that right) from Mumbai, and obviously, because I'm writing to you, I'm a fan of Digit. Now I'm not going to bore you with unnecessary, inconsequential details, like this is the first time I'm writing to you guys, yada yada, but I'll get straight

to the point. Digit is an amazing magazine and I love the way you guys manage to put an entire world into its limited thickness. It's informative, funny at times and very interesting. The editorial is brilliant. Now I'm not your typical geek, and may not have very hard core technical knowledge, but I sure do enjoy everything that is put in these pages. The links mentioned on the top of the pages are a great way to cover space and open up into little tidbits of fun. I particularly love the Digit Diary section, since it tells readers a bit about those who actually make this magazine and it's a laugh riot most of the time! The CDs are a wonderful addition to the already wonderful magazine. The DGT and Fast Tracks are also worth a mention. Thanks to Digit, I can brag a bit about my techie knowledge and it really helps. Like all the other readers, I want to complain about the ads, but I know they're there to stay. So I'll just say that the ads are a bit more interesting than they are in other places. It may be because of the "Digit Effect"! Few words can express my feelings better than these.

You guys have seriously awesome jobs! (Did I mention amazing, fun and highly enviable, considering the amount of gadgets you get to review?) How did you manage to get these jobs? Please shed some light on that. I'll just say, keep spreading the tech bug. I'd love to get myself cured – not!

Cheers!

-Urvi Talaty

📌 Hi Urvi,

Thanks for your mail and words of encouragement. The team's pretty kicked about the fact that more and more girls like you are joining the legion of geeks.

Do keep writing in and next time, please tell us what you'd like to read more of, what we're doing wrong and where we can improve. We want to get better and better with your help! About getting this dream job, it's pretty simple – all of us were readers of Digit once. We were passionate about technology, loved to write about it, so when we finished our education we applied and got in.

- Siddharth

Canvas turbo mini

POWERFUL CAN BE PETITE

Loaded with features yet light to hold, the Canvas Turbo Mini is synced to speed. With a slender aluminium body weighing 110g and powered by a 1.3GHz Quad Core processor, the Turbo Mini is thinner, faster and lighter. The stunning 11.9cm HD IPS screen brings pictures and videos to life while the Camerazzi camera takes breath-taking panorama pictures. It's powerful technology that fits in your hand.

Vital Stats



Weight - 110 grams

Thickness - 7.8mm

Display



11.9cm (4.7) HD IPS Screen

Performance



1.3GHz Quad Core Processor



1GB RAM

Operating System



Android 4.2.2 (Jelly Bean)



Camerazzi Camera



8MP Rear Camera / 5MP Front Camera



Vertical & Horizontal Panorama



Cinemagraph - Animate your still photographs (.gif)



Object Eraser - Erase unwanted objects from your still pictures



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e-cigarettes don't help you quit

According to a recent study by researchers at the University of California, e-cigarettes users don't help users quit smoking. <http://dgit.in/Esiggy>



Panasonic HX-A500

This new wearable camcorder from Panasonic is capable of shooting videos at 4K with 25fps. Is it a GoPro killer? <http://dgit.in/PanaPro>

Welcome to the New Age

The future is here. Keep yourself updated with the newest buzz in technology

Enter: Morpheus

The president of Sony Computer Entertainment Worldwide Studios Shuhei Yoshida has announced that Sony will soon launch a new headset which will bring VR gaming and non-gaming software to Sony's PlayStation 4. The virtual reality technology from Sony has been dubbed 'Project Morpheus'. The headset is still in prototype form.

Sony is planning to focus more on virtual reality technology to enhance gaming experience on its consoles. Yoshida says, "Virtual reality is the next innovation from PlayStation that will shape the future of games."

Project Morpheus by revealing a black and white prototype of the headset for PlayStation 4.

Sony plans to demonstrate Project Morpheus at GDC (Game Developers Conference) which is being held till 21 March at Moscone Center in San Francisco, USA.

According to Richard Marks, senior director of research and development at Sony Computer Entertainment America, Project Morpheus will be used for non-gaming apps as well. He also added that Sony is working with NASA on its Jet Propulsion Lab which is an exploratory project.

Marks said that Sony is focusing on six areas with its

"We will continue to improve on this prototype by gathering feedback from developers. That's why we unveiled it at GDC."

~Shuhei Yoshida

creates positional sound, "such as footsteps climbing up stairs below them, or engine noises of helicopters flying overhead." Sounds will change along with players' head orientation "creating a highly realistic audio environment within an immersive 360-degree virtual world."

Content pushed to the Morpheus can be mirrored to a TV, but it sounds like it can handle asymmetric gameplay (different things on each screen) as well.

An "Open air" design prevents the lenses from fogging up. (It'll be interesting to see how they prevent light leaking in)

Sony has already developed some playable demo games for the Project such as London Studio's "The Deep," in which players will descent into a diving cage and encounter deadly ocean predators. Other demos include "The Castle," which is a medieval combat game and CCP Games' space dogfighting game called "Eve Valkyrie." A special version of Square Enix's and Eidos Montreal's Thief has also been developed.

The new Extreme Edition processor will support the new DDR4 memory standard and also the best performance when it comes to gaming, video editing, 3-D content and other high-end uses.

Intel also showcased a new 4th gen Intel Core processor code named "Devil's Canyon". The new processor will give enhanced performance and more overclocking capabilities to high-end users. The new chip, which is due in mid-2014 includes improved thermal interface and CPU packaging materials.

The company also announced plans of launching more upcoming processors such as Intel Pentium processor Anniversary Edition and a 5th gen Intel Core processor which will come with Iris Pro graphics. The Pentium processor will be a commemoration of more than 20 years of its Pentium lineup. The 5th gen Intel processor is code named "Broadwell."

Intel Corporation, which is a pioneer in desktop computing is looking forward to announcing some more innovative technologies later this year. The SoC maker also wants to focus on mini PCs and desktop all-in-ones (AIOs) due to their compelling form factors. The company says that its desktop business was particularly strong in Q4 of



They're not Lawrence Fishbourne's *pince-nez*, but they'll do!

The early VR attempts of Sony were demonstrated by Yoshida using a modified version of God of War seen from a first-person, as well as some headset prototypes that date back to 2010. Later, he unveiled

Project Morpheus: sight, sound, tracking, control, ease of use and content. The Japanese electronics giant also wants to make the headset a mass market device.

Morpheus will use Sony's 3D audio technology that rec-

Octo-Core and more

Intel has announced new processors at a media event held at the ongoing Game Developers Conference in San Francisco. The processor will be available in the second half of this year.



Huggable robots

A new generation of inflatable and huggable robots are touted to replace complex mechanical automatons. They'll also be 3D printed. <http://dgit.in/RoboHug>

2013 with its desktop platform volume up by 7 per cent.

Intel demonstrated a portable AIO PC reference design called "Black Brook," a thin and light system incorporating exciting new capabilities that enable compelling new user experiences anywhere in the home. Black Brook has been built for the purpose of enabling new technologies in the industry and includes an integrated Intel RealSense 3-D camera, a quad microphone array, premium audio and a full HD display.



The future of Intel

Lisa Graff, vice president and general manager, Intel's Desktop Client Platform Group said, "Enthusiasts are the heart and soul of the desktop and they asked us to give them more. We are delivering - more cores, better overclocking, faster speeds."

With these announcements, Intel wants to show that despite the high growth of mobile technology, PCs should not be sidelined especially when it comes to raw performance.

DSK-IC City students shine at BAFTA 2014

DSK International Campus celebrates the nomination of its students' at the internationally acclaimed BAFTA 2014 AWARDS. The concept of Project Heera from the DSKIC Game Design team revolves around a diamond heists; a

multiplayer game developed to provide a high entertainment value to the audience.

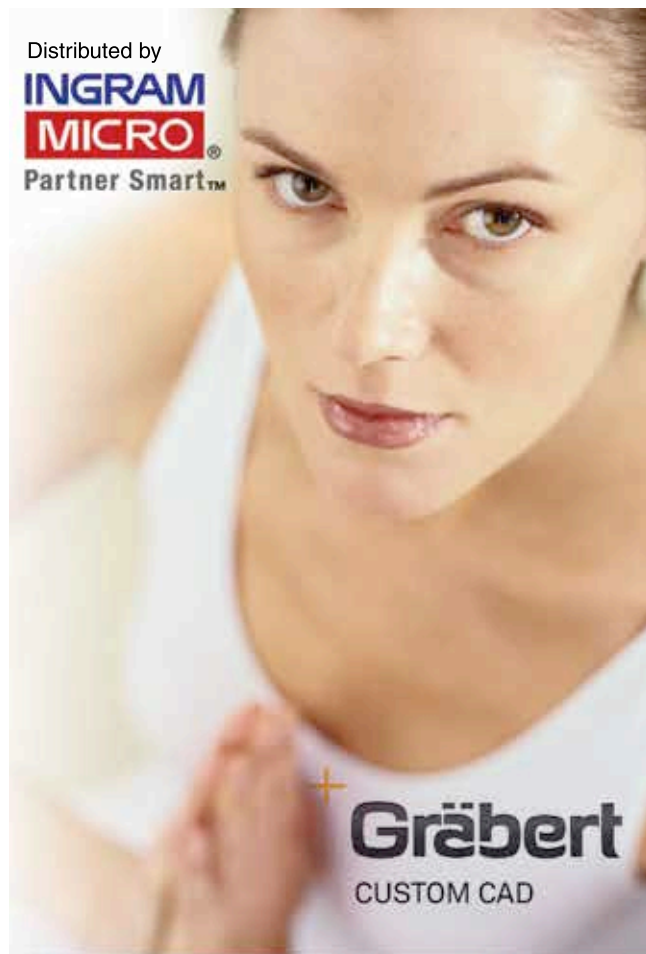
The faculty and management of DSKIC are thrilled to announce the nomination of the Team 'Mazhlele' which consists of both Indian and French students.

With the consistent efforts towards promoting application based learning DSKIC has been instrumental towards encouraging students to participate at International Competitions. This initiative saw Team Mazhele participating and winning the Dare to be Digital competition held at Scotland. It was a ten weeks program for designing a fully functioning video game prototype, 'Project Heera'. This particular prototype got showcased and judged by the industry experts and got nominated for the BAFTA 2014 for the 'A Ones to watch' category.

Mrs. Tanvi Kulkarni, Joint Managing Director of DSK International Campus, said, "It is encouraging for the students but also the management and faculty as we envisage towards creating a niche industry in India for Video Game Design. Such projects are growingly important for carving opportunities; for the students and for companies tapping young talent. With the radical developments in the global gaming industry and the explosion in the number of new games landing, it is becoming important to understand the technical aspects in terms of need and offering of customized platforms, designs tactics with global appeal. We are consistently working towards providing live industry projects to our students, as this will create boundless possibilities for them in terms of exposure and career growth."

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AND BREAK THROUGH



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DR. O P BHALLA INNOVATION AND INCUBATION CENTRE (DOPBIIC), an initiative of Manav Rachna International University, is dedicated to Dr.O.P. Bhalla, Founder Visionary, Manav Rachna Vidyantariksha, whose dream was to encourage both researchers and students to bring their pioneering ideas to the forefront. The centre strives to meet the needs of students and faculty members who are inclined towards research & development, innovation and novel ideas. DOPBIIC has been furnished with design, fabrication and manufacturing facilities, which are available to the users on a 24x7 basis. Students have only to conceive ideas and transform these into products using existing facilities. The facilities are available to groups of students participating in international/ national project competitions and also to students and faculty members working on their projects. The proposed areas are mechanical, automobile, electrical, electronics, computer science, biotechnology, non-conventional energy etc. Ideas in these and other fields are welcome. The focus is on applied research leading to patents, research publications in reputed Journals/ Conferences and

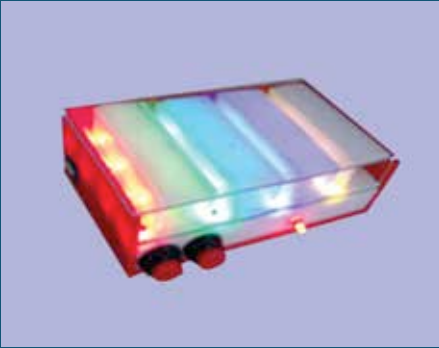
generation of IPRs, with the ultimate aim of improving employability skills of the University Graduates. The centre also offers Skill Development Programmes in the relevant areas.

SOME OF THE REPRESENTATIVE PROJECTS UNDERTAKEN:

ELECTRONIC PILLS BOX:

The Pills Box is a portable medication reminding device. It provides an audio and visual alert on the scheduled time which helps patients in taking correct medicine, at correct time and in correct dosage.

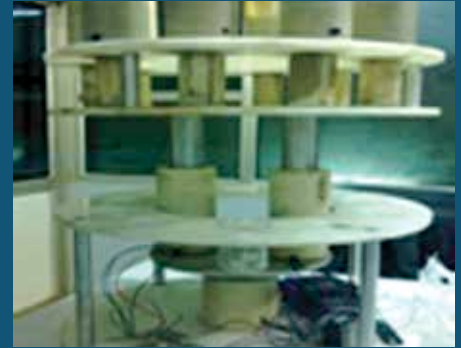
- Designed to help patients take right dose at the right time.
- USB & Bluetooth Compatible.
- Scheduling can be done using Smartphone Application or PC.
- Initiates audio visual reminders to remind the patients about different medicine timings.
- Also reminds the patient about their next appointment with the Doctor.



The Pillsbox helps infirm and elderly people not to miss medication at the right time.



The smart skull saves lives in case of serious accidents.



Swasthay Sanjivni makes sophisticated blood and urine testing facilities available in remote areas.



It is necessary to keep the environment clean. The smart bin makes it fun.



Fuel conservation is the need of the hour. This car gives an average of 123 km/litre.



Short distances can be covered in manually driven and electrically assisted vehicles. Saves fuel, preserves environment and improves health.

SMART DUST BIN:

A smarter way to keep the earth clean..!!

- Produces social messages when trash is thrown inside.
- Encourages people to put all the garbage in the dustbin rather than on floor.
- Increases the waste collection.

SMART SKULL:

Simple, immediate and effective safety protocol for bridging the time gap between an accident and information flow to nearest kith and kin, police and/or hospitals. It is a Smart Helmet that sends accident notification to the nearest hospital and the patient's relatives. The project got selected as one of the best 20 innovations in Wearable Technologies Innovation World Cup 2013 and participated in the official Award Ceremony on January 27 in Munich, Germany.

SWASTHYA SANJIVANI:

It is an affordable, approachable, quick and automatic on-the-spot blood and urine testing system with immediate confirmatory results covering disease such as anemia, diabetes, jaundice and renal damage in supervision of doctors. It won the Gold medal at National level for HIV Plus project- a portable equipment for HIV and lab testing in Intel Embedded Challenge in 2011 by Intel.

The project won 1st prize in Microsoft Imagine Cup 2013 in India, in two categories (Innovation & World Citizenship). The project proudly represented India in world finals at St. Petersburg, Russia.

TRACTOROBOT:

A robot controlled Tractor project fetched the Gold Medal at National level with a prize of Rs. 10 Lakh in Intel Embedded Challenge Imagine Cup 2011 competition.

ALL TERRAIN VEHICLE - 1

- The vehicle has a powerful engine of 305 cc.
- Has a ground clearance of 8 inches for better off road experience.
- Works on a rear engine drive system.
- Winner of "BEST INNOVATION AWARD" in BAJA SAE India.

EFFICYCLE

- Load bearing capacity of 700 kilograms.
- Vehicle involves ergonomic design.
- It has an aerodynamic design in order to run at speed of 30 kilometers per hour.
- A HYBRID vehicle having a motor of 1 horse power that runs on 48 volts and 35 Ah.
- Acclaimed as most comfortable vehicle by SUBROS panel in Chandigarh.

FUEL EFFICIENT DIESEL CAR:

This Vehicle participated in Fuel Economic Vehicle Competition, Shell ECO Marathon 2014 held at Manila, Philippines in February 2014. The Vehicle cleared all safety and technical tests.

DOPBIIC is open to students and faculty of other Universities also on membership basis. ■

Web Watch

In this month's edition of Web Watch we take a look at what Google, Twitter and Facebook are upto

20

App Watch

We bring to you an assortment of apps that you must try out. These include essential tools and some fun stuff too.

26

Phone launches, inside scoops and other updates

Read on to get up to date with the latest happenings in the world of mobility

Holy pixel density, Batman!

Chinese smartphone manufacturer, Oppo has officially announced its latest smartphone called the Find 7. The smartphone was unveiled at an event in China, and features a 5.5-inch Quad HD display with 2560x1440 pixels resolution and a pixel density of 538 ppi.

The Oppo Find 7 features a quad-core Qualcomm Snapdragon 801 2.5 GHz processor coupled with 3GB RAM. It has 32GB of internal storage expandable via microSD card support. The Find 7 smartphone features a 13 MP rear camera with dual-LED flash. It is capable of recording 4K video and 720p slow-motion clips at 120fps. The smartphone comes with Super Zoom mode that takes 10 consecutive shots quickly, then automatically picks 4 best shots and merges them into a single 50 MP image. It also has a 5MP front-facing camera for video calling.

The Find 7 runs a custom firmware called Color OS based on Android 4.3 (Jelly Bean). It has a unique "breathing" noti-

fication strip below the display that shows incoming calls, unread messages and email alerts. It has special MaxxAudio speakers and an app dubbed MaxxEq, to fine tune the audio. The Oppo Find 7 packs a 3000 mAh battery.

Oppo has also announced a 5.5 inch 1080p display version of the smartphone as

well. The device dubbed Oppo Find 7A has slightly downgraded specs and is powered by a Snapdragon 801 2.3 GHz quad-core processor paired with 2GB of RAM. It has 16GB of internal storage expandable via microSD card slot and packs a 2800 mAh battery. Rest of the specs including the camera remain the same as the ones on Find 7. The FHD Find 7A will be available across stores in China from tomorrow, while the QHD Find 7 will be launched from May or June this year.

Oppo also unveiled a smart wristband called the O-Band at the event. The band tracks your sleeping patterns, sends alerts for missed notifications and records fitness data. It also comes with an in-built vibration alarm.

Xperia users can rejoice

Sony officially announced new software upgrade including

Android 4.4 KitKat for its devices. Sony has already begun rolling out the update to the Xperia Z Ultra, Xperia Z1 and Xperia Z1 Compact smartphones. The Xperia Z, Xperia ZL, Xperia Tablet Z and Xperia ZR will start receiving the update in the second quarter of this year. Sony's Xperia T2 Ultra, Xperia E1 and Xperia M2 are also scheduled to receive the update.

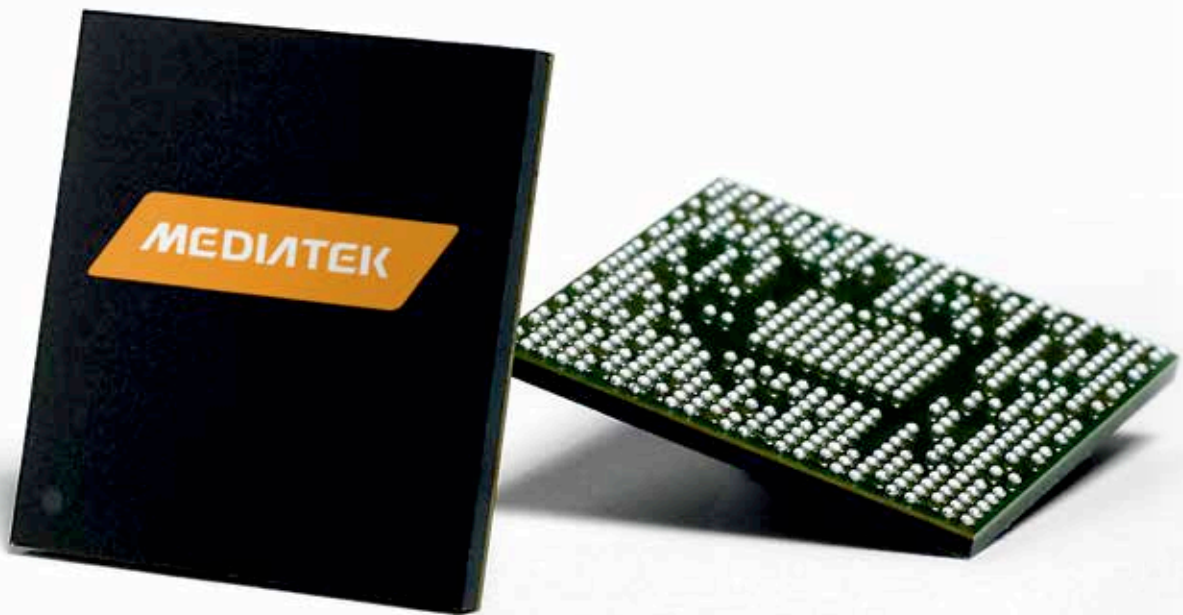
Google's Android 4.4 KitKat as standard brings performance and UI optimisation. Sony has added new Status Bar and Quick Settings, which the company says is more intuitive and customisable. There's new animation and livewallpaper across the lock and home screens.

A lot of Sony's apps have also been upgraded. One of the highlights of the new update is Sony's custom interface experience - Xperia Themes, along with downloadable UI packs from Sony Select.



MediaTek MT6592

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Advanced Multimedia Features

- 1080p 30fps Video w/ World-first HEVC & VP9 playback support

- ClearMotion Technology : Motion-Blur Free Video Playback as 60 fps
- MHL 2.0 support for multi-screen applications/ultra-portable PC - High-Fidelity 24-bit Audio support

Android v4.2.2 "Jelly Bean" and v5.0 "Key Lime Pie"

Chromium browsing experience on mobile phones/tablets

Multiple-window, laptop-like experience on mobile devices

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Security Watch

It's a dangerous world out there full of trojans, exploits, malware and other baddies.

MS Word 2010 under attack

Reports suggest that a remote code execution vulnerability in Microsoft Word 2010 is being exploited in targeted attacks.

Aren't we tired of Apple rumours?

In yet another rumour from AppleInsider, it turns out Apple is going to stick to a 8MP camera on the fabled iPhone 6. Despite other smartphone manufacturers increasing pixel count on their flagship phones, Apple is reportedly sticking to an 8MP camera on its next flagship smartphone iPhone 6. According to source at AppleInsider, Apple is looking to enlarge pixel size rather than increase the camera sensor pixel count.

The new camera will be similar to the one found on the iPhone 5 and iPhone 4S which feature 8MP cameras as well.

"The current iPhone 5s is a good example of how Apple is not interested in playing the numbers game when it comes to camera sensor pixel count. Instead of boosting the number of pixels in the iPhone 5s camera, Apple enlarged each pixel's size to 1.5 microns in diameter, a 0.1-micron increase from the iPhone 5. The larger surface area increased the sensor's light gathering capabilities by 33 percent compared to the previous iSight rear facing camera," the website said. Apple seems to be more focused on factors as if color reproduction and the lens as megapixel count are not important.

The upcoming iPhone 6 is expected to feature a better

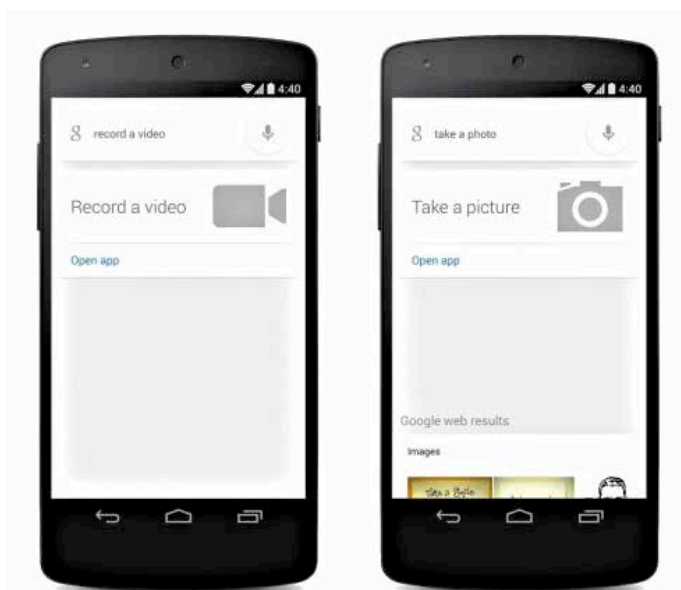
optical image stabilization (OIS). The feature will help users prevent blurry photos especially during shaking of the phone.

iPhone 6 is also expected to feature a 4.7-inch display with ultra-retina display and a thinner body.

Nokia's not far behind on the rumour train

The rumoured Nokia Lumia 930 (Martini) and Lumia 630 (Moneypenny) handsets are expected to go official at Microsoft's forthcoming BUILD conference. Microsoft is gearing up for some major announcements at its forthcoming BUILD Conference, which is slated to begin April 2 – about the time you'd be reading this issue. Thanks to a spate of rumours, we already know Microsoft is likely to make its new Windows Phone 8.1 update official at the event. But, that will not be all. According to new rumours, the company will launch two new Lumia handsets - Lumia 930 (Martini) and Lumia 630 (Moneypenny).

According to reports, the Lumia 930 will be a GSM version of the recently showcased Lumia Icon. However, the smartphone will have a few different features such as a 4.5-inch display instead of 5-inch. The Lumia 930 is rumoured to feature 2.2GHz quad-core processor, 2GB of RAM, 16GB of storage, a microSD card slot,



a 20 megapixel camera and a 2700 mAh battery.

Earlier reports suggested that the Lumia 930 would be launched on April 19 along with handsets such as the Nokia Lumia 1820, Lumia 1525 and Lumia 1520 V. However, new reports suggest the handset will see the light of day ahead of schedule.

The Nokia Lumia 630 is considered as the Lumia 620. The smartphone will feature dual-SIM option, 4.3-inch WVGA screen, Snapdragon 400 chipset and 5MP camera.

Both the Nokia Lumia 930 and 630 will run the new Windows Phone 8.1 OS.

Google Search: Glass-like ?


Google has released a new update for its search app for Android that lets you use voice commands to activate camera and click pictures. Google has stated in a blog post that the camera will be activated in the user's preferred mode also.

Android users will just need to tap on the microphone icon on the Search app, or say 'Ok Google' to launch the default camera app with voice com-

mands like 'take a picture' for launching the camera app in camera mode, and 'record a video' for opening the app in video mode. You don't have to use the recommended phrases, for example, even "open camera" will also work.

Google announced on its Google+ page yesterday, "Now with the Google Search App on Android, you can just tap the microphone or say "OK Google", then "take a photo" or "take a video."

Another feature announced is 'listen to TV' that works like Shazam. "If you happen to miss the name of one of the songs while watching, just go "OK Google" and say "listen to TV". You'll find out the title, artist and other cover versions," Google notes. The update has been launched in US only for now.

Google 3.0 update also gives SwiftKey-like abilities to the stock Android Keyboard. The keyboard app will keep track of your typing habits, lingo, preferred words, etc. and offer personalized suggestions accordingly. Google has set the feature on by default, but users can change it in the Google Keyboard settings menu. 



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Bitcoin rules flawed

Researchers are uncovering holes in the algorithms governing the mining and distribution of bitcoins <http://dgit.in/NMPjP3>



Piracy goes mobile

Music piracy watchdog are starting to see a trend, of smartphone piracy running rampant in the US <http://dgit.in/1oXRKMv>

Twitter, Facebook and Google dominate the web

Read on to find out what the triumvirate has been upto this month

Twitter flexes its muscles

Twitter is reportedly testing a new feature that will allow users to go through a timeline for favoured people. The new feature is dubbed as 'Fave People'.

The new feature is currently available in Twitter's alpha Android app. Currently in testing phase, it may take few more weeks before the general release. The app, which also features a swipe-able top menu, includes 'Fave People,' alongside the more familiar Home, Activity and Discover sections.

The feature is similar to Facebook's favoured friends, where users could star them on their profile. The favoured friends delivered a separate timeline, along with an option to turn on notifications for such updates. It's not yet confirmed whether the new feature will ever see light of the day. The new feature is considered to be a simplified version of Twitter's current lists.



Mark Zuckerberg calls Big Brother

Facebook CEO expressed his frustration over NSA's practices by calling US President Obama after new documents were leaked by Edward Snowden showing that NSA planned to infect millions of computers worldwide with a data extracting malware.

Facebook CEO, Mark Zuckerberg called US President Barack Obama to express his frus-

tration regarding the National Security Agency's (NSA) surveillance practices.

Zuckerberg put up a status update on Facebook saying, "I've called President Obama to express my frustration over the damage the government is creating for all of our future. Unfortunately, it seems like it will take a very long time for true full reform."

The update came a day after new documents were leaked

by whistle-blower Edward Snowden which revealed that NSA was using an automated system called TURBINE to hack into millions of computers worldwide. The documents also revealed that NSA was using fake Facebook server and pages to infect a target's computer.

"I've been so confused and frustrated by the repeated reports of the behaviour of the US government. When our engineers work tirelessly to improve

security, we imagine we're protecting you against criminals, not our own government," Zuckerberg said.

Even though the social networking site has come under attack from privacy activists multiple times accusing it of handing over data to intelligence agencies, Zuckerberg has always denied Facebook giving the US government any kind of direct access to its servers.

This is what the big man had to say in its entirety:

As the world becomes more complex and governments everywhere struggle, trust in the internet is more important today than ever. The internet is our shared space. It helps us connect. It spreads opportunity. It enables us to learn. It gives us a voice. It makes us stronger and safer together. To keep the internet strong, we need to keep it secure. That's why at Facebook we spend a lot of our energy making our services and the whole internet safer and more secure. We encrypt communications, we use secure protocols for traffic, we encourage people to use multiple factors for authentication and we go out of our way to help fix issues we find in other people's services.

The internet works because most people and companies do the same. We work together to create this secure environment and make our shared space even better for the world.

This is why I've been so confused and frustrated by

ZEBSTATION® ROLL

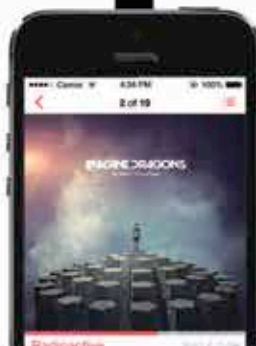
Portable Bluetooth Speaker

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Always Ahead



Enter a world of

Unshackled Freedom



Stream music seamlessly via bluetooth

Make conference calls

Small on size, yet big on sound



Bluetooth Range
ZEB-BH930

Zebstation® Closic

Tabmate

Blue Air



LED Display
Aux-in, FM SD, USB
Digital Clock, Alarm Function, Built in Battery



7mm Ultra Slim Design
Stainless Steel Back Shell
Function Keys for Android / iOS, Built-in Battery



Built-in Mic
Call/Volume/Playback Control
Built-in Battery with 200 Hrs Standby



Comfortable to wear
In-built Noise Reduction system
Built-in Battery with 110 Hrs Standby

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Best Indian Peripheral
Brand 2013



Instagram's dirty secret

How everyone's favourite photosharing app and network isn't playing fair. An investigation: <http://dgit.in/1hjoGZR>



DirectX 12 kicks ass

Microsoft touts performance improvements for existing hardware in DirectX 12. New API offers more low-level GPU access. <http://dgit.in/1drdTBI>

the repeated reports of the behavior of the US government. When our engineers work tirelessly to improve security, we imagine we're protecting you against criminals, not our own government.

The US government should be the champion for the internet, not a threat. They need to be much more transparent about what they're doing, or otherwise people will believe the worst.

I've called President Obama to express my frustration over the damage the government is creating for all of our future. Unfortunately, it seems like it will take a very long time for true full reform.

So it's up to us – all of us – to build the internet we want. Together, we can build a space that is greater and a more important part of the world than anything we have today, but is also safe and secure. I'm committed to seeing this happen, and you can count on Facebook to do our part.

Clouds just got cheaper

Google has upped the competition in the cloud storage segment as it slashes the prices of Drive monthly storage plans.

Google is now offering its 100 GB plan for just \$1.99, which was previously priced at \$4.99. For 1TB, Google has more lucrative offer. It's now available at \$9.99, earlier it was priced \$49.99. Google's 10TB plan is now available with option of



adding more space, starting at \$99.99. For 20TB storage, you have to shell out \$199.00 a month, while 30 TB is available for \$299.99. The standard 15GB drive is still free.

On the other hand, Dropbox offers 2GB of space free, while extra storage starts \$9.99 a month for 100GB while Box gives you 10GB of free storage off the bat, and charges \$5 a month for 100GB. "Whether it's all the footage of your kids' baseball games, the novel you're working on, or even just your grocery list for the week, we all have files that are too important to lose," says Google Drive's Director of Product Management, Scott Johnston, wrote in a blog post.

"Today, thanks to a number of recent infrastructure improvements, we're able to make it more affordable for you to keep everything safe and easy to reach on any device, from anywhere." If you are an already paid Google Drive user, Google will upgrade your plan at no additional cost.

Google has so far made several efforts to ensure its cloud storage offering is more convenient and affordable for users. It allows users to view attachments and save files to Drive right from Gmail.

No more @replies: Will Twitter break?

Micro blogging site Twitter is experimenting with a new version of its Android app that removes @ replies entirely. Vivian Schille, Twitter's Head

Of News hinted such a possibility at a recent event.

According to reports, Schiller recently stated that hashtags and @replies are "arcane," while speaking at the Newspaper Association of America's mediaXchange conference in Denver. She hinted that they may be removed soon from the service to provide a more 'streamlined' approach to help new users understand the concept of Twitter.

Schiller has since downplayed her comments, but a recent screenshot from the alpha version of Twitter for Android suggests that @replies may be removed in favour of Facebook-like mentions, although it is only an experiment at this point and there is no suggestion that regular @ mentions are affected. The thinking behind the change is that new users may find Twitter easier to understand with the removal of the @ replies and hashtags, but loyal users are quite likely to protest against such changes.

Twitter currently has 241 million monthly active users, an increase of just 3.8% over the previous quarter. In its financial results of the fourth quarter, the microblogging site has registered a decline in its user base which earlier grew at 10% in the beginning of 2013. Twitter's advertising revenue was \$220 million an increase of 121% y-o-y.

YouTube reportedly going under-10

Internet giant Google is reportedly building a version of YouTube just for kids under 10 years. According to reports, YouTube has even gauged the interests of video producers willing to create child-oriented content for the online video platform.

The Kids-friendly version of YouTube will not require con-

stant monitoring by parents over what content their child sees. The goal will be to offer a site to parents that will be free of both videos and comments that may not be child oriented. Parents could, for example, access a special app on a device or TV that includes only kid-safe videos.


YouTube already has a "safety" mode for filtering out inappropriate content as well as YouTube EDU, for educational videos for schools. However both the modes contain advertising that can sometimes



be questionable and parents can't ensure that the content is specially tailored for a specific age group.

According to reports, YouTube for kids is still in the development phase and no details have been mentioned on how it will work. One possibility is that the usual ads on the video platform may be removed or at least tailored to suit child oriented content.

A representative from YouTube also said the following about the news: "While we're always working on new and better ways for people to enjoy YouTube, we do not comment on rumour or speculation."

YouTube has over 1 billion unique users per month that watch over 6 billion hours of video. The online video platform has starting monitoring video views and content for artificially inflating video counts. The move will ensure that advertising campaigns on the site reach the target audience. The portal has started specializing and is expected to launch a music streaming service in 2014 as well. 



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HOW TO FAKE SOCIAL STARDOM

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TALES FROM THE VOID

A brand new section featuring some of our own home-brewed fiction. Time to take a flight of fancy.



GET HEALTHY WITH TECH

Fitness apps, wearable gadgets that track your vital signs and even rumours of Apple entering the game. It's all got to mean something right? We give you the low down.



RECOMMENDATION ENGINES

It is remarkable how algorithmically driven engines are able to learn your tastes so well. We'll show you how they work.



COMPARISON TESTS

TOP MONITORS

Ranging from 22-inch to 32-inch, we test all the monitors in the market right now.

PROJECTORS

Home entertainment projectors from a budget of ₹50,000 to ₹1,50,000. Which is India's best 3D projector?

India's
very 1st
4K monitor
tested





Nokia Refocus

Nokia Refocus which was initially available for Lumia Pureview smartphones only, has now been launched for all Lumia smartphones <http://dgit.in/RefocusIt>



Introducing Haptik

It's essentially a instant messaging service dedicated for customer support in the 21st century. Try it out! <http://dgit.in/1h46WVV>

An assortment of must have apps

This month in App Watch we take a look at apps you must try out. Why? Because we said so...

Wattpad

Wattpad is like a social network for aspiring authors looking to develop a fan base. Amateur writers can share their work and readers can choose from a plethora of published writers as well as undiscovered new talent. The Wattpad community is highly supportive and encouraging. Besides being able to receive constructive criticism and comments on their work, aspiring writers can also read other authors' work making it a great learning tool. Users can even share accounts allowing them to write collaboratively with friends.

Readers can vote up the work they like and these stories get

A notable feature of Wattpad is its crowd-funding feature called "Fan Funding". Authors can post information about their work and offer rewards – such as naming a character in the writers' book after fans – in exchange for funds.

Wattpad has a clean user interface and is easy to navigate.

Download: <http://dgit.in/1fUb4Di>

Price: Free for Android & iOS

Comic Zeal

Download: <http://dgit.in/1jvjXqB>

Price: ₹302 (iOS)

Comic Zeal is perhaps the best comic reader out there. It's especially meant for people who have their own collection of CBR and CBZ comic files.

The most appealing thing about Comic Zeal is the way it organises your comic library. All you

have to do is load your comics onto your device – using Wi-Fi, USB or Dropbox. It automatically detects and arranges your comics by series. You can also manually arrange your comics using swipe.

Once selected, the comic will occupy the entire screen. To adjust reading settings such as brightness, panning, color and animation, one can simply tap



anywhere on the screen and is provided all the options. There's a 'Smart Zoom' feature that remembers your zoom preference while flipping through pages. You can set up reading lists and track which comics you have and haven't read. While setting up these lists, those with a penchant for categorising can keep the same comic in two different lists thus creating multiple copies. The comic will remain on your device until you delete its very last instance. This makes editing your lists easier and you don't have to worry about mistakenly deleting the original comic.

Bitolithic, the company that developed Comic Zeal, is dedicated to continuously improving the app by taking into consideration every user complaint that comes its way.

So far, it's only available for iOS at a price of \$4.99 (~₹302) which is a reduction from its previous \$8 (₹485) price tag. An Android-supported version of the app hasn't been released yet nor is it in the works, unfortunately.

Download: <http://dgit.in/1jvjXqB>

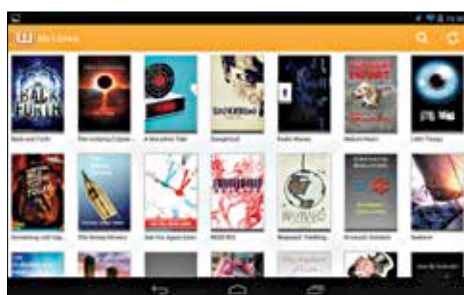
Price: ₹302 (iOS)

TeamViewer

TeamViewer is a free remote access app that allows you to control your TV or computer from anywhere. It's unlike apps like VNC where you have to launch the app each time you want to control a device.

To use TeamViewer, you'll need to create a TeamViewer account and download the installable from its site onto your computer. Then download the app to your phone, set a username and password for each device you want to control and you're all set.

You can zoom in and out of your desktop screen and even switch between monitors, if you have more than one connected to your computer. When your devices are connected over different networks, sometimes speed drops. To overcome this, TeamViewer gives you the option of lowering image quality and disabling screensavers. It also easily overcomes firewalls and proxy servers to enable control of your work computer.



featured in the 'What's Hot List' which changes daily according to reads and votes. It also has a 'Featured Stories List' which puts up work reviewed and deemed notable by an editorial review board.

Readers can keep track of their favourite authors by becoming 'fans' and receiving an email each time the author releases new work.



Discovering music

Here's how we're encountering new music in the smartphone age, and why it just works beautifully without a hitch <http://dgit.in/1nW5k62>



Rise of plagiarism

The internet has made it awfully easy for digital thieves to just copy-paste whatever they want. An analysis: <http://dgit.in/1fdizGa>

App Watch

With TeamViewer, you can switch off the TV/Computer from a different room, control playback while watching a movie, assist your friends and family with their computer issues, and even help colleagues at work solve issues without leaving your desk.

Download: <http://dgit.in/1mqeohM>

Price: Free for Android, Windows Phone 8 and iOS

Meritnation

How do you get kids interested in studying for school? Make an app for it! That's exactly what Meritnation has done. It makes studying for school fast, easy and fun. One can get study material for students from CBSE, ICSE, Maharashtra (MSBSHSE), Karnataka (KSEEB), Kerala and Tamil Nadu boards. Currently it only deals with Classes 6-12 since younger students may not have access to smartphones and tablets. But its site has course-work for lower standards as well.

After downloading the app, the student must register as a user specifying which class s/he is in. Study material is accordingly provided.

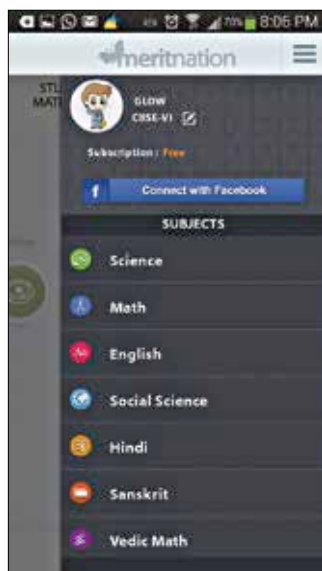
The UI is uncluttered and very well organised, first by Subject then by Topic. Once you choose a topic, study material is provided. After going through the study material, you can choose to revise or take a test and move on to the next topic.

Videos, animations and interactive exercises make studying fun. Content is very concise and to the point. Math is explained step by step with the help of videos.

Certain course materials require you to pay a fee in order to become available.

Download: Android - <http://dgit.in/1fa8F82> | iOS - <http://dgit.in/1prYxMR>

Price: Free for Android & iOS



Sing! Karaoke by Smule

Sing! is a global karaoke party and social network with users from all around the world participating. It has a huge collection of songs. While some are free, others need to be purchased. The user interface is pretty cool right from the get go. The homepage shows you which countries most users are singing from. Clicking on a user lets you hear them sing and even join in if you like. Duets and group singing are supported by the app and you can join in an existing karaoke party anywhere for free.

Most songs require you to pay 99 cents if you want to download and sing them by yourself. Lyrics are displayed on screen as are cues to show you when to start and how well you're staying on track.

Singers can record their voices, add effects and share their recordings online either through Facebook or Smule's own network. You'll get scored based on how well you can stay on pitch. Of course, Smule offers enhancements that make users sound better which is probably a much needed feature consid-

ering the raw talent out there.

Download: Android - <http://dgit.in/1fUemq8> | iOS - <http://dgit.in/1h16kAs>

Price: Free for Android & iOS

Toshl

Toshl helps you monitor your spending. It is well designed and makes keeping track of your expenses less cumbersome. Toshl helps you see exactly where your money is going. It can be configured for your whole family to use across smartphones so that a family budget can be maintained. There's also a reminder every day for those of us who won't diligently enter expenses. You must enter your income so that Toshl can sum up and show you your net balance.

While entering data, you can add generalised tags for regular expenses so you needn't type them out repeatedly. You can set different budgets with these tags for say Bills, Groceries, Entertainment, Online Purchases, etc and see where you're going overboard. Accordingly you can find areas to cut down on. Toshl is best used as a daily budgeting tool.

All data is backed up very securely to Toshl.com and no one can gain access to it without a username and password.

Download: Android - <http://dgit.in/1mqfF8G> | iOS - <http://dgit.in/1nTyGBW>

Price: Free for Android & iOS; ₹1,214 for Pro version

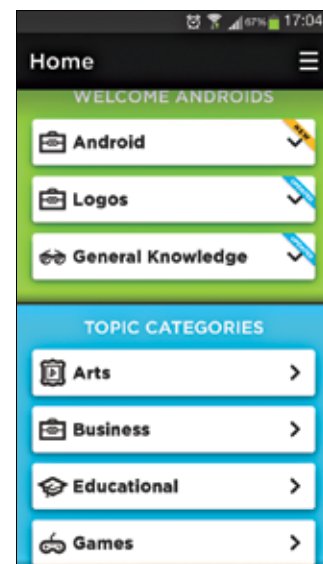
QuizUp

QuizUp is a trivia-based, highly addictive game, originally made for the iOS platform but recently ported to the Android platform as well. QuizUp is loosely based on an old popular board game called Trivial Pursuit.

Once you create an account on QuizUp and log in, you can choose to be quizzed on more

than 400 topics. Each game consists of seven questions and points are given based on how quickly and correctly you answer these questions. You can play against random opponents or challenge your friends. You can even challenge random opponents who are the most experienced in a particular topic. The app tries to pair you against opponents who are more or less at the same level as you are but occasionally you may run into a much more experienced player. Depending on the points you score you increase your experience level per topic and gain achievements.

QuizUp keeps track of all your statistics and you can review each game you've ever played in extreme detail, down to which questions you got



right and wrong. You can even submit your own questions which are added to its database post staff approval. Topics range from Movies to Food and even some academic ones like Math and Biology.

Download: Android - <http://dgit.in/ONBeSs> | iOS - <http://dgit.in/1kXAUeV>

Price: Free for Android & iOS

Need a laugh?

Follow this link to get a random funny video of men being bungling idiots:
<http://dgit.in/heroindr>

Heroin addiction caused by what?

An article on New Republic says heroin epidemics don't come and go randomly. The largest cause, they say, is doctor-prescribed pills. Find out more: <http://dgit.in/heroindr>

Your online privacy may be at risk

We take a look at the important developments over the last month that could have a major impact on your online security

Kul Bhushan

readersletters@thinkdigit.com

WhatsApp CEO reassures users about privacy issues

Facebook's \$19 billion acquisition of WhatsApp last month was followed by concerns over privacy of the app's 450 million plus users. Privacy advocates even sought to block the deal, stating that the sale would hurt WhatsApp users by allowing their data to be merged into Facebook's advertising business. WhatsApp's co-founder and CEO Jan Koum took to his company's blog to assure users that the company won't be gathering additional user data for Facebook's massive advertising business.

"You don't have to give us your name and we don't ask for your email address," Jan said. "We don't know your likes, what you search for on the internet or collect your GPS location. None of that data has ever been collected and stored by WhatsApp, and we really have no plans to change that."

He also emphasised that the deal with Facebook is a partnership and none of WhatsApp's principles would change. "If partnering with Facebook meant that we had to change our values, we wouldn't have done it. Our future partnership with Facebook will not compromise the vision that



WhatsApp Co-Founder and CEO Jan Koum

brought us to this point," he added. Mark Zuckerberg also stated in a recent interview that Facebook had no plan to put ads in WhatsApp. His primary goal is to reach 1 billion monthly active users by year-end with a host of new services such as free voice calling.

NSA capable of recording all calls of a nation!

The National Security Agency (NSA) of USA has reportedly developed a surveillance system, which is capable of recording "100 percent" telephone calls of a foreign country. According to *The Washington Post*, the new system enables the agency to rewind and review conversations as long as a month after they take place. People with direct knowledge of the effort and documents supplied by former NSA contractor Edward Snowden have revealed

these latest activities of the intelligence agency.

The program which began way back in 2009 is a voice-interception program called MYSTIC. The system is said to have reached full capacity against the first target nation in 2011.

According to classified summary from one of the documents, the collection systems are recording "every single" conversation nationwide and storing billions of them in a 30-day rolling buffer that clears the oldest calls as new ones arrive. The summary also says that the call buffer opens a door "into the past," enabling users to "retrieve audio of interest that was not tasked at the time of the original call."

The documents further say that the analysts listen to only a fraction of 1 percent of the calls, but the absolute number is said to be higher. Each month, these analysts send millions of voice clippings, or "cuts," for processing and long-term storage.

The MYSTIC program is special for NSA in a sense that all of the agency's programs that have been unveiled till now have involved bulk collection of metadata and not call content.

The principal technologist for the American Civil Liberties Union, Christopher Soghoian said that history suggests "over

the next couple of years they will expand to more countries, retain data longer and expand the secondary uses."

Mark Zuckerberg expresses frustration over NSA, calls President Obama

Facebook CEO Mark Zuckerberg called on U.S. President Barack Obama to express his frustration regarding the



The emblem of the program depicts a cartoon wizard with a telephone-headed staff

National Security Agency's (NSA) surveillance practices.

Zuckerberg put up a status update on Facebook saying, "I've called President Obama to express my frustration over the damage the government is creating for all of our future. Unfortunately, it seems like it will take a very long time for true full reform."

The update came a day after new documents were leaked by whistle-blower Edward Snowden which revealed that NSA was using an automated



Intel X99 details leaked

Leaked details of the upcoming Intel Haswell-E X99 chipset show that it will support DDR4 memory amongst many other new features <http://dgit.in/IntelX99>

People don't like hot food?

In a strange finding it was revealed that Microwave sales have fallen or remained flat every year for nearly a decade in the US.

Security watch

system called TURBINE to hack into millions of computers worldwide. The documents also revealed that NSA was using fake Facebook server and pages to infect a target's computer.

"I've been so confused and frustrated by the repeated reports of the behaviour of the U.S. government. When our engineers work tirelessly to improve security, we imagine we're protecting you against criminals, not our own government," Zuckerberg said.

Even though the social network has come under attack by privacy activists multiple times accusing it of handing over data to intelligence agencies, Zuckerberg has always denied that Facebook gives U.S. government any direct access to its servers.

Windows XP support ceases, govt systems vulnerable to hackers

Government systems running Windows XP will reportedly become more vulnerable to attacks after Microsoft ends support of the OS on 8th April. The deadline will also affect banks as more than 95 per cent of the world's ATMs run on Windows XP.

Microsoft Windows XP supports over four million government computers in the U.S. alone and the lack of security updates post the deadline will

make the government more prone to exploits and malware. Microsoft is offering a paid support extension for governments and businesses, but this service could prove more costly in the long run than upgrading to Windows 7 or 8.

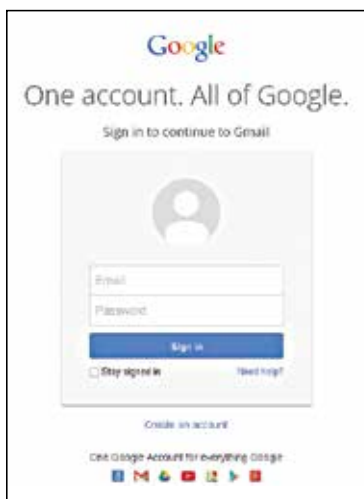
"There are certainly large enterprise customers who haven't finished their migrations yet and are purchasing custom support," a spokesman for Microsoft said, declining to name those customers or to quantify the extra revenue it is earning. "The cost will depend on both, the specific needs of the customer and what support they already have in place, so it's different for every customer."

Microsoft mentioned the Windows XP deadline 7 years ago in 2007, but only one-third of the world's 2.2 million ATM's have upgraded to a newer platform since then. To ensure that the machines are protected against viruses and hackers many banks have agreed to deals with Microsoft wherein the company will continue supporting their ATMs until they're upgraded at significant costs.

RBS is upgrading its machines to Windows 7 and it will take about three years to complete. JPMorgan has also started converting its OSes to Windows 7 and it will be completed by the end of this year. Lloyds has extended its support contract with Microsoft to 2016 while it updates 7,000 units. HSBC and Santander have agreements in place with Microsoft already, while Barclays is still negotiating a deal with Microsoft.

Google Docs users targeted by sophisticated phishing scam

Symantec researchers have discovered a sophisticated



phishing scam that targets Google Docs users. According to the researchers, the scam uses a simple subject of "Documents" and urges the recipient to view an important document on Google Docs by clicking on the included link.

The link goes to a fake Google Docs login page, in which the users then enters their credentials. The credentials are then sent to a compromised web server

amous Malaysia Airlines plane by luring customers with the latest news in order to steal their personal information, warns a new Trend Micro report.

The internet security firm has asked users to be careful while clicking on links shared on various social networks for news of flight MH370. TrendLabs has spotted various executable files disguised as video which allow

scammers to gather a user's data, such as his or her IP address. Some of the fake links are mentioned below.

- "[Shocking Video] Malaysia Airlines missing flight MH370 found in Sea."
- "Malaysia Airlines missing flight MH370 found in Sea - 50 people alive saved."
- "CNN UPDATE [Breaking] Malaysia Airplane MH370 Already Found. Shocking Video"



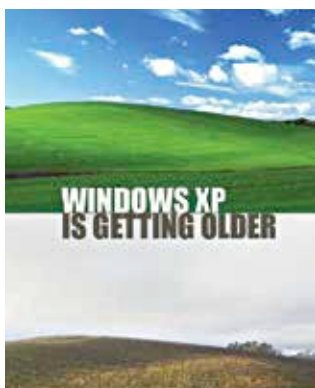
where they're stored, before redirecting users back to a real Google Docs document, making the attack look convincing.

Fake Malaysia Airlines news used to steal user data

Cybercriminals are exploiting the disappearance of the infa-

The Malaysia Airlines flight mysteriously disappeared from the radar on March 8 carrying 239 passengers.

"Given the heightened interest in the missing flight, it was only time (before) cybercriminals used it to their advantage," TrendLabs expert Paul Oliveria said in a statement.





Mesmerize yourself

Head over to the link below to see some of the most beautiful kaleidoscopic GIFs: <http://dgit.in/GetTransfixed>



Viva la revolution

The next Assassins Creed game may be set in the French Revolution, Find out more: <http://dgit.in/1gtrtocxx>

The Internet's Devolution

When net neutrality norms are flouted by big corporations the world over, it alters the very nature of the internet experienced by all of us

Jayesh Shinde

jayesh.shinde@thinkdigit.com

As people using the internet are constantly adjusting and evolving to a digital lifestyle, so is the internet evolving as an entity based on our behaviour. And it's evident if you look back to the birth and the explosive growth of the internet to this very moment. In a not so distant future, most people won't remember how the Internet was once upon a time – free and beyond the control of spying governments or greedy corporations. Because it's such a powerful medium of our age – something that's altering human behaviour down to its very core – everyone's fighting to exert control over it. Not surprisingly, ISPs – our gateway to the internet – are becoming more demanding on how we

access the internet. Some of the decisions they take are having far-reaching implications, something that will span well beyond just your monthly internet bill.

Net Neutrality 101

The basic premise of Net Neutrality is that all data is to be treated equally. This means that your ISP (which happens to be the entity providing you with internet connection) will treat your request to access Flipkart.com, Google.com or ThePirateBay.se, Pastebin.com, or Mega.co.nz without distinction and on equal priority. The ISP won't play favourites when it comes to serving one site better than the other. We trust them to be neutral gatekeepers that let us access the internet for a fee, but in doing so they do not knowingly alter our experience of the internet in any way. These, along with other explicit points, form

the guiding principles of the FCC's (Federal Communications Commission) Open Internet policy (read more here: <http://dgit.in/FCCnet>) which was adopted back in 2010 in order to limit the power of ISPs to block or discriminate against online content.

What's at stake?

Earlier this year in January, a federal court in America ruled against the FCC's Open Internet rules and awarded Verizon (a major telecom operator and ISP in the US) to break free of FCC's regulations, which they argued (and the court agreed) only governs landline and mobile telephony and not this relatively new "information services" service known as the internet.

The reason why activists in the US and most of the West are up in arms, treating this landmark court verdict as a hammer blow to the freedom of the internet because



To experience unrestricted Internet

How to find out whether your ISP is throttling / blocking your Internet access? Don't just test your connection, but find out what your ISP doesn't want you to know: <http://dgit.in/1oTkRAB>

Net neutrality Economics

A research paper by Prof. Barbara Van Schewick, giving a diverse range of arguments around the subject. A must read: <http://dgit.in/1dhJcy7>

Feature

FCC's net neutrality norms prevented ISPs from blocking or prioritizing Web traffic. Free from FCC's shackles, Verizon and others can charge certain websites (Netflix, Hulu, YouTube, and similar high traffic, high bandwidth sites) for preferential access or better service. Imagine a scenario where ISPs have slow and fast lanes, where most of the Web traffic's crammed into the slow lane, while a chosen few (who pay money to the ISPs) are kept on the fast lane for uninterrupted services. This can lead to potentially detrimental consequences to the end user – common people like you and I, who are increasingly dependent on the internet for more than just getting things done.

Far-reaching consequences

ISPs won't just dictate terms to high-volume, high-traffic websites, but also to their paying customers. Imagine a scenario where YouTube's paying ISPs to be on the fast, unrestricted lane to have zero performance bottlenecks. How long can YouTube be free in such a scenario? This may also result in increased advertising on YouTube videos, and even a nominal charge – collected by YouTube or the ISP – exacted from viewers through these “notorious” ISPs.

So far the internet's been this level playing field for one and all, big and small entities vying for our undivided attention – be it just another viral video or social networks like Facebook or Twitter. But as the power of the internet grows and it starts overtaking traditional television, music, other prominent entertainment and communication options, we will see big corporations (including ISPs and content publishers) increasingly exert control over it all. Essentially, the Internet's going to go the cable television way. There will be only a handful of channels and services dominating the internet highways as smaller, newer companies just won't be able to match up to the established big guys in their capacity to pay ISPs and present their content on a fair footing.

We may unknowingly be living in a golden age of the internet, because as things stand there will be no fair competition in the highly evolved internet of the near future which is staring us in the face, which will lose some of its current sheen. As we

move away from television and radio to be entertained in new and unimaginable ways on the internet right now, the future seems a lot less exciting and dominated by handful of sites and services, and stifled innovation. As you read this, there's a raging debate going on around net neutrality around the western hemisphere predominantly.

Indian impact

According to several reports, we here in India are already grappling with the concept of net neutrality without realizing it for some time. But what's worrying the most is that there's no actual law governing or upholding the norms around the concept of net neutrality. And the Indian Govt isn't moving speedily towards creating one any time soon.

According to The Indian Express, the Telecom Regulatory Authority of India (TRAI), “in its guidelines for issuing licences for providing Unified Access Service, promotes the principle of non-discrimination but does not enforce it.” It further goes on to state that India's

EXPERT SPEAK

In a Computer Weekly interview last year, Vinton Cerf, widely regarded as the Father of the Internet, is a strong proponent of net neutrality. This is what he had to say on the hotly debated subject: “Freedom of access is the value of the internet. It is fully connected. You don't want a network provider to tell you which places you can get to.”

Information Technology Act does not provide regulatory provisions relating to Internet access, and does not expressly prohibit an ISP from controlling the Internet to suit their business interests.

However, what's important to note that unlike the West, which has a large and growing demand for fixed line broadband connections, India's seeing an overwhelming demand for cellular broadband with the ushering in of the smartphone age. With the advent of 3G / 4G data there has been a huge rise in the number of Internet users in India. This has led to telecom operators (ISPs, in this case) staring at the very possible scenario of increased network

congestion and clogging bandwidths. In the absence of tight regulation, this scenario is ripe for ISPs' imposition of blocking websites or allowing premium Internet services as part of VAS (or value added service).

And such things have already happening in India. Have you ever wondered how BitTorrents work fast or slow on different ISPs? Certain file-sharing services are banned on a number of ISPs not because they provide illegal content (that's almost always a small percentage of the whole) but due to their high-bandwidth requirements? If one inspects such cases hard enough, it won't be surprising to come across the possibility that they're in discord with net neutrality principles. And it's a disturbing trend, if at all it's gathering traction.

That's not all...

There's evidence of principles being compromised for profit margins, too. Take the case of Airtel's Free Zone (<http://dgit.in/GoogAirt>) which offers Google+, Gmail and Google search for free for Airtel's cellular broadband subscribers. Google's a big proponent of FCC's Net Neutrality norms, and Airtel has made no bones about its desire (in requests to TRAI) to charge companies like Google for the data they transmit over Airtel's network. Why then would these two seemingly opposing entities work together if not for mutual benefit? The answer is simple: both are market leaders in their respective domains, and by joining hands they ensure no one else can innovate and rise to topple them over.

What's important in the debate around net neutrality is to take the power away from big corporations that distribute content through the internet and the ISPs that give us access to that content and place it in the hands of the consumer -- the ultimate entity that consumes the internet. We as consumers need to have the right to pick and choose which services the ISPs should charge on our behalf and pay for these “freemium” services, if we think we can't live without it. If that doesn't happen, then the whole net neutrality debate will lead towards an internet that will be starkly different from its founding ideals and revolutionary vision. And it's everyone's responsibility to protect the internet from its impending doom. ■

F1- step forward

Take a peek into some of the things that are new in Formula One



Rise of the Machines

How Wikipedia is curating content and keeping trolls out of the system with one secret weapon
<http://dgit.in/vergeflappybird>



Ultimaker 2

This is another fine specimen among 3D printers available for purchase in the market. It prints through PLA (like on the KUBE and Cube), but has a greater 3D print volume stretching up to nearly a 10-inch cube. Unlike the original Ultimaker, which was a DIY kit you had to assemble yourself, the Ultimaker 2 comes pre-assembled. Apart from being able to print through SD cards, this baby's Wi-Fi enabled for even greater convenience and connectivity. Aesthetically, the Ultimaker 2 looks like a device straight from the Apple mould, and it won't look out of place in a stylishly designed living room with a corner dedicated to the eye-catching 3D printer sitting among a collection of its creations. Price: US \$2,500.

Dröol-worthy 3D printers that are worth every penny

Cube 3D Printer

One of the most popular off-the-shelf 3D printers available for purchase, Cubify's Cube 3D printer is a great starting point for your formal introduction into the exciting and inspiring world of 3D printing. The printer has a print area of 5.5 inch cube volume, and it can print in PLA (polylactic acid) as well as acrylonitrile butadiene styrene blocks, giving you the flexibility of precision vs time, depending on what you're trying to print. It can print things in 16 colours, two of which glow in dark, and there are 25 free models for you to get started on the 3D printing journey. At \$1,399, the Cube 3D printer may come across as expensive, but since the whole space is new, this is what you'd have to pay to get a decent 3D printing experience.





Sloppy researchers, beware!

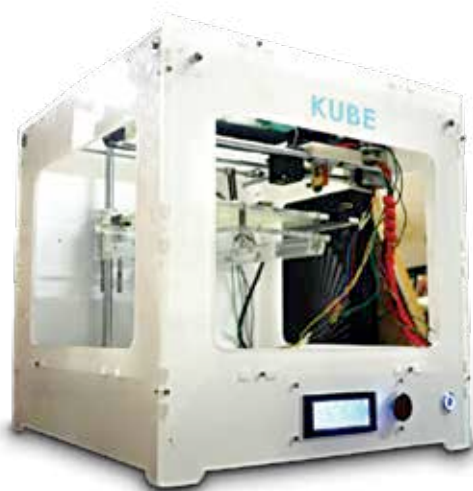
Stanford is starting an institute to track research papers for sloppy scientific analyses and references. <http://dgit.in/1mgOe0Y>



Blaupunkt navigator

The San Diego in-car navigator from Blaupunkt now comes with up-to-date maps of India <http://dgit.in/1jIhUAd>

Drool maal

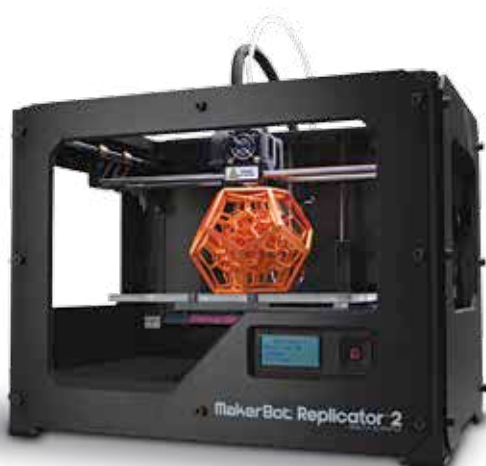
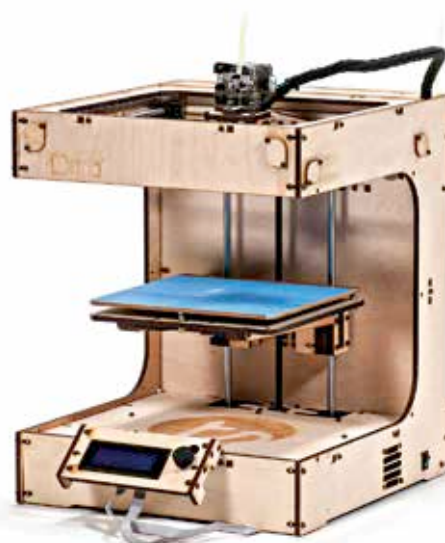


KUBE

The brainchild of Karan Chaphekar, a strapping young man in his early twenties, hailing from near Mumbai, KUBE is one of the best homegrown 3D printing solutions that you can get in the market right now. KUBE supports single extrusion (1-color printing) and a volume of a 8-inch cube, which gives this monster the ability to print relatively larger 3D models. The printer has a LCD control and SD card print option, and we've seen it in action. The KUBE neatly printed out a full-scale model of an iPhone 4S case (with a Digit logo engraved), and a lot of small objects, while we had it in our Test Centre – 3D models printed off the KUBE displayed a high degree of craftsmanship. The KUBE sells for Rs. 54,000 (US \$900), while a smaller 6-inch version sells for Rs. 36,000 (US \$600).

Ditto+

In your quest to purchase a 3D printer that's worth your money, be sure to consider the Ditto+ printer from Tinkerine Studios. They raised Ditto (a precursor to Ditto+) through crowdfunded money over at Indiegogo, and Ditto+ is its brand new successor. The 3D printer comes out-of-the-box with easy plug-n-play functionality, and you don't need it connected to a PC to print stuff on it. The Ditto+ has a built-in spool holder on the back that should fit many spool sizes and includes a feed tube to the extruder. If the prosumer machines are out of your price range, the Ditto+ may be worth looking into as it offers a big build area for most projects, and a documentation and software combo that's simple enough for entry-level users.



MakerBot Replicator 2

One of the most popular 3D printers you can buy, a machine that transcends the levels of a prosumer to almost be as great as a professional industrial 3D printer, that's essentially what the Replicator 2 is. This is a fourth generation printer from MakerBot, and it looks and acts like a fully functional consumer product. Its black powder-coated frame, rugged black PVC panels, and soft glowing LEDs give the MakerBot Replicator 2 an attractive and durable sheen. Several independent reviewers of the device claim it to be nothing less than the Mercedes S-Class of the 3D printing world at the moment. It's price? US \$2,199 may seem too steep, but it's justified given its no-fuss, hassle-free 3D printing operation and overall handling – be it software or hardware.



Don't die at home

Do you know that drinking too much water can kill you? All that and more can be found at <http://dgit.in/donteateva>



Linux cryptoworm

Linux.Dartloz, an Internet of Things worm has been found to infect and mine bitcoins <http://dgit.in/LinWorm>

F1 - step forward

With a slew of rule changes being introduced in the current season of Formula 1, here's a peek at some of the new changes



0-Whoa! in 2 seconds flat

A. Pathak

readersletters@thinkdigit.com

As a new F1 season rolls around, fans all over the world have fastened their seatbelts to get in on the racing action. The season testing in Jerez (Spain) and the premiere Grand Prix in Melbourne only reaffirmed the fact that Formula One can still be a highly competitive sport and not just a boring merry-go-round of sorts. Further, the rule changes has had some massive effects on the fortunes of the competing teams.

This year's rule changes focus on safety, fuel saving and energy recovery. Dubbed by pundits as one of the "biggest reconditioning exercises in the history of the sport", the new changes affect the engine, fuel limit and aerodynamics.

Here's a look at the major changes impacting the sport that is considered to be the foremost form of car racing.

Fuel Saving

While F1 isn't exactly Captain Planet's favourite sport, the new fuel limit might

help assuage the green guardian. This year, the fuel limit has been slashed down by a brutal 30 per cent, which means almost 50 kgs less than the usual capacity. While teams could previously guzzle unlimited fuel, they usually used about 150 kgs per race. The new limit means that drivers will be working on different schemes to sustain the same amount of fuel for the entire length of the race, especially in the earlier laps.

Gear up for this

Well, quite literally, the number of gears in the cars have been upped from seven (in 2013) to eight this year. While in the previous season, teams could pick and choose seven from a total of 32 ratios, the ratios have now been slashed down to a not-so-grand total of eight. Until last year, teams could tailor the gearbox to meet the requirements for each track. This year, teams will be allowed to change their ratios only once. What this means is that if a team has had the misfortune of picking the wrong set of ratios, they could potentially doom their chances of ever making it across the finish line. And to answer the

question about why the additional gear was allocated: one could speculate that with low capacity engines, drivers would be prompted to push the cars harder. The additional gear would result in smoother delivery of power across the rev band.

The engine revolution

After a bit of a tug of war, teams have finally bid goodbye to the mighty 2.6-litre V8 engine and have accepted the leaner 1.6-litre V6. While the V8 was naturally aspirated – meaning: all the power was derived from combustion taking place in the cylinders without the use of any fancy bells and whistles – the V6 has a turbo-charger bolted on to it compensating for the power that was lost when the two cylinders and a litre of capacity were taken away.

The free revving capabilities of the V8 were also lost with the cylinders as the new engine hits the rev limiter at 15,000 RPM as opposed to 18,000 RPM in the previous season.

The lower rev limit helps produce lesser exhaust gasses as more fuel is required for a higher rev. Besides saving fuel (and the environment), the cap also reduces wear and tear on the engine. And considering that this year the number of engines have been restricted from eight to five, it seems like a pretty good idea.



1.6 Litre V6. Furore or furball?



HTC One M8

HTC One M8 announced, will be available for sale in India this month
<http://dgit.in/HTCWanM8>



Who was Carl Sagan really?

A profile piece on this famed scientist and celebrity. What was his life like? Find out at
<http://dgit.in/carlsag>

Feature

The drop in capacity, cylinders and a lower rev limit has dropped power from a hair-chested 750 bhp to a lean and muscular 600 bhp has made the cars a tiny bit slower. However, the teams seem to be 'managing' as the season progresses.

Fun Fact: Formula 1 is bringing back the turbo for the first time since 1988.

The turbo noise

People ask, "Why have a separate caption for the noise created by the new cars?" Well, like many eccentric fans, one believes that the raw noise emanating from the engine is a part of the F1 essence. The cars now, however, have a different sound as

the exhaust gases while the other takes power from the rear wheels while braking. The former is also used to keep the turbo spinning so that power is always available on tap. The ERS stores more energy than its earlier counterpart. All in all, this essentially means that not only is there more power, but more torque as well for a longer period of time.

It's interesting to note how F1 is moving towards the hybrid engine era. The sport joins the league of Le Mans which also uses hybrid engines, but Le Mans is more of an endurance race than a festival of speed.



Low downforce? Will it fly now?

The new DRS flaps are flatter and open wider thus reducing drag and allowing easier overtaking.

So what does all this mean?

Considering that the sport was being blamed for being too dependent on technology and repetitive not so long ago, the new measures ensure that every team, no matter how good, starts from scratch. The purpose of all this fiddling seems to be to level the playing field and bring focus back to the core of F1, i.e., the driver.

While all of this has been done for the benefit of the sport, the regulations have no doubt produced a slower, heavier car. The minimum weight of the cars has been increased from 642 kgs to 691 kgs to incorporate the weight of the hybrid power unit. There was also a definite 3-second lag in the fastest lap this year in



Rhinoplasty reminiscent of Rhinos

the high pitched whine of the naturally aspirated V8 has been replaced by the quieter but zippier sound of the turbocharged V6. Good news for all the Delhi socialites who developed severe headaches last year after the Indian Grand Prix!

The shift in engines did, however, ignite a fear among die hard fans that the sport would lose its voice due to the more tamed sound of the turbo; however, the race in Melbourne erased all such doubts as the new cars raged through the tracks.

To ERS is F1

The 2014 model is also harvesting power from the shiny new Energy Recovery System (ERS) which has been incorporated as a part of the power unit. The ERS provides at least 160 bhp per 33 seconds as compared to the 80 bhp per 6 seconds provided by the earlier Kinetic Energy Recovery System (KERS).

The ERS essentially has two supporting units. One draws energy from

The nose job

One major change in the aerodynamics this season is that of the nose of the car. It has been lowered from a height of 550mm to 185mm. However suggestive the new look may be, it steps up driver safety as there is now a lower chances of the car doing belly flops on the race track after getting hit.

Clipped wings

The car now looks sleeker with its front wings narrower than the rest of the body. The wings have been chopped from a width of 1800mm to 1650mm. This prevents drivers from clipping each other's wings. The changes to the front wings have also reduced downforce by a good 20 per cent, making the race car a bit of a loose cannon as it becomes harder for it to stay in line.

Rear wing

The rear wing has also gone under the knife as the lower beam has been removed and the Drag Reduction System now opens wider. If that made no sense to you then let us explain.

The Drag Reduction System or DRS is essentially an adjustable rear wing. The function of the DRS is to allow a free flow of air, reducing drag, which when engaged in specific zones on the track allows the driver to simply go faster.



Flying high

the Melbourne Grand Prix as compared to 12 months ago.

But the season has barely started and there are plenty of races to follow, as avid fans, we're just happy that the element of unpredictability is, at long last, back in this prestigious sport. **[1]**

APPETITE FOR DESTRUCTION



War is a terrible thing but it is also disturbingly fascinating to the human race in general. Join us as we attempt to breakdown the weapons of war to aid your understanding of the destructive potential at mankind's fingertips

Anirudh Regidi

War. The very word conjures up images of death and destruction, glory and sacrifice, martyrs and madmen. All said and done however, war is simply, as Wikipedia puts it, “an actual, intentional and widespread armed conflict between political communities; a form of political violence.”

There is no honour in war, no glory, you do what you must to survive, to win, that's all there is to it. One might take a moral high ground as to the cause one is fighting for, but in the end, defeating your enemy by any means at your disposal is your goal, and this usually means complete and utter destruction, or doing enough damage that the survivors have no option but to surrender.

To that end, humankind has a mind-boggling arsenal at its disposal, all designed for combat at every conceivable scale. Trillions of dollars have been spent in the development of these weapons of war, not to mention the millions upon millions of lives lost to these very same weapons and the many trillions in property damage. Regardless of this cost, mankind will continue to build these weapons and will continue to fight each other until some significant step in our evolution puts an end to this appetite for destruction.

Mankind's very existence is a constant battle against the odds, a struggle to survive, an incessant one-upmanship that exists, if for nothing else, than to prove a point of view. Some might argue that it's even simpler than that, that humans have an innate desire to “blow stuff up”, that they revel in destruction. There is a kind of queasy joy in seeing something blown to smithereens by the calculated ferocity and disturbingly creative minds of our species.



The visceral power of naval guns in action

Is it a sense of power that drives us? We take as much pleasure in destroying a sand castle as we do in creating it, the more creative the destruction the better. There is a certain sense of catharsis in blowing something up, to feel that shock-wave pass through your chest that shakes

**THERE IS A CERTAIN
SENSE OF CATHARSIS
IN BLOWING
SOMETHING UP**

you to the very core of your being. Admit it, Diwali to you is more about the bombs and rockets than it is about diyas and lights and pujas. You've led a very tame childhood if you haven't tried to blow up an anthill with at least a “bijli bomb” and you're not a geek if you haven't, at one time or the other, sought to recreate a controlled demolition that you've seen on TV. At the same time the festival is also about proving to your arch rivals that you had more fun than them, fun that is defined by the number of bombs you blew up and the quantity of fireworks at your disposal (your arsenal).

It's with a sense of pride that you light a "10,000 wala" to mark the start of festivities, your choice of crackers are defined by their destructive potential. All this is nothing more than an indication of the appetite for destruction that we all try to feed. This very same appetite, scaled a million-fold is what most wars are all about. Our appetite for destruction is insatiable and no matter how civilised we pretend to be, it's an innate desire that's been hardcoded into our DNA.

In this cover story we aim to satiate that desire from an intellectual stand-point. We'll be adopting a blinkered perspective if you will, ignoring the horrific nature of war, the casualties, the pain and suffering. We'll be focussing on war only from a more technological stand-point, the tools of the trade, the weapons and the technology. We will marvel at the ingenuity of the human race and ignore the barbarity of war.

HOW DO WE FIGHT?

All of us know what war is, we've already defined it earlier in the article. However, how does one go about fighting a war? The various weapons and technology that we're aware of have been created for use in wars, but obviously, there is some specific thought-process that went into their creation. Why, for example, would a tank require an APFSDS round instead of a HESH round?

War is an armed conflict, but there are many types of armed conflicts ranging from civil to nuclear war, varying only in the scale of destruction.

THERE IS A KIND OF QUEASY JOY IN SEEING SOMETHING BLOWN TO SMITHEREENS BY THE CALCULATED FEROCITY AND DISTURBINGLY CREATIVE MINDS OF OUR SPECIES

Whatever the type of war being fought, the basics of warfare don't change and even Alexander the Great will have an excellent understanding of today's military tactics, once he wraps his head around 20th century equipment of course. The weapons have changed, but the tactics remain the same.




All war requires tremendous sacrifice. It's best we not forget that, ever.

There are many arguments as to how a war is fought but the general consensus is this, infantry are the focal point of any sort of military operation (we're not counting assassination missions involving precision munitions and lone targets deep behind enemy lines). The whole point of the rest of the military, be it the air-force, navy or armoured units is to support the infantry in their push to achieve their objectives. There are many who'll argue otherwise, but what we're stating here is

so on and so forth. Not to mention a whole other rock-paper-scissors thing going on in the air (fighters, bombers, recon, etc.), on land (tanks, tank destroyers APCs, LCVs, trucks, etc.) and at sea (destroyers, cruisers, aircraft carriers, submarines) and more. But it's never this simple. There are too many variables. The weapons at our disposal are now too powerful and portable to fall into a clearly defined category.

Finding the perfect balance between all these factors is what makes a great military force and the person with the ability to understand and utilise them to their full potential makes for a great general. Understanding the true scope of military might and the very nature of armed conflict is well beyond the scope of this magazine, but hopefully, the following pages will give you a better idea with regards to what you can expect in future conflicts.

With this story we aim to educate you on the basics of warfare from a technological stand-point. A sort of rudimentary guide-book to the weapons of war. This is far from a comprehensive look at all things military, but as always, the aim of the article is to pique your interest in what can be a very fascinating field of study. For more information, head over to <http://dgit.in/DigitMay2k14> 

just the general consensus of a group of respected military tacticians.

It's a complicated game of rock-paper-scissors and one might try to boil it down to this: armour destroys infantry, aircraft destroy armour, special infantry destroy armour and aircraft, the navy provides support, special armour destroys aircraft and

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TOUGHER THAN NAILS

A study of modern armoured vehicles

Anirudh Regidi

Armoured vehicles form the backbones of the army. Their roles range from simple recon to troop transport to armoured support. Since World War II, armoured vehicles have formed the spearhead of any military invasion, busting through defences and enemy armour alike. Earlier, armoured vehicles simply meant tanks, but now that definition has evolved to encompass a wide variety of vehicles that can be broadly classified as follows:

SOFT VEHICLES

A comparatively uninteresting category. These are usually standard civilian vehicles that have been modified for better off-road performance.

Unarmed soft vehicles

These are basically trucks and 4x4s that are primarily designated for troop transport and, in some cases, recon. These vehicles can be maimed or destroyed by almost any kind of firearm.

Armed soft vehicles

These are soft vehicles that are outfitted with mounted machine guns and grenade launchers and in some cases, even ATGMs (Anti-Tank Guided Missiles). Such vehicles are still very vulnerable to any kind of attack, but they can adequately defend themselves in a pinch. The ATGMs are particularly useful for hit-and-run attacks when facing armoured vehicles.

ARMOURED VEHICLES

These are vehicles that are the true backbone of any army. They offer distinctly

better protection than the unarmoured variety. This class of vehicles is primarily designed to be "aggressively employed" during combat, hence the armour. Based on armour and armament, these vehicles can be broadly classified as follows:

Light armour

These are vehicles such as the Plasan SandCat and the more popular Humvees that are still in operation. These vehicles



The age-old humvee is still a reliable tool

provide reasonably effective protection from small arms fire and might even be able to withstand RPGs, but anything more powerful, including .50cal machine-guns will be a problem. Such vehicles are primarily used for patrol duty and rapid transport in conflict zones. There isn't much innovation to be seen here other than thicker armour plate and certain forms of ceramic/composite armour.

Medium armour

These vehicles are the bread and butter infantry support vehicles. They feature excellent protection against small arms fire and can even survive hits from older

AT weapons (Anti-Tank). They're usually armed with auto-cannons, grenade launchers and even mortar launchers and TOW (Tube-launched, Optically-tracked, Wire-guided) missile launchers. While such vehicles cannot usually go head-to-head with tanks and other heavily armoured vehicles, they can take out said armoured vehicles if given the opportunity. Of note here is the Stryker I.F.V. (Infantry Fighting Vehicle), a variant of which houses the same 120mm smooth-bore canon that's found on the M1A1 Abrams MBT (Main Battle Tank).

Heavy armour

Now we come to the real meat of the army, the tank, or the Main Battle Tank as it's now known. The tank is quite simply the most fearsome and heavily armoured ground attack vehicle that can be brought to bear. They're the cavalry of the modern age, the armoured spearhead of any major assault. Tanks have evolved quite considerably since they were first introduced in WW1, but essentially, that evolution has taken the form of advanced armour and even more advanced anti-armour ammunition.

ARMOUR AND ARMAMENTS

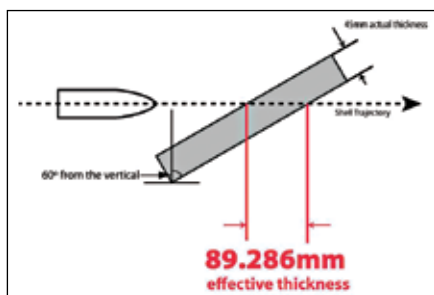
Modern armoured vehicles are no longer clearly defined in their roles. They're each designed with a primary role in mind, but advanced armour modules and guided missiles have completely reshaped the battlefield, an era where even a foot-soldier is as lethal as the most powerful tank when armed with the right weapon.

Modern armour is no longer specific to a particular platform because most of it has been designed as modular blocks. It's perfectly feasible to equip even decades old military vehicles with blocks of ERA and make it almost impenetrable to the enemy.

Here's a quick guide to the evolution in arms and armour over the decades.

ARMOUR

- **Plate metal:** Early armoured vehicle were outfitted with plates of metal as a form of armour. It was probably the Germans who discovered (reports are a bit hazy on this) that sloping the armour greatly increased its rating, further increasing the effectiveness of the armour.
- **Composite / Chobham armour:** The increasing effectiveness of armour-piercing shells meant simple plate armour would have to be inordinately



Sloped armour

thick to provide adequate protection. Composite armour is a mix of a very tough ceramic compound sandwiched between layers of metal. The ceramic is hard enough to force most incoming projectiles to shatter on impact.

- **Spaced armour:** This type of armour consists of multiple armour plates that are separated by an air gap, as this Stryker IFV proudly demonstrates. HEAT and HESH rounds explode on contact, doing no damage. It's also effective against RPGs.



That grill you see is spaced armour

- **Reactive Armour:** This is the most advanced type of armour in service today. One form of this armour is Explosive Reactive Armour, where the layers of composite armour are sandwiched together by a layer of explosive. This explosive layer violently displaces the plates when compressed, successfully dissipating the bulk of the energy of the incoming projectile. The British are working on a form of charged explosive reactive armour. Essentially, an electric charge that's carried by the armour module itself triggers the fuse on an incoming projectile, prematurely detonating it.

AMMUNITION

- **Armour Piercing:** Think of this as a rifle bullet, except that it's of a larger calibre and fired from a tank. Plain Jane AP rounds are basically a single block of metal designed with the sole aim of puncturing enemy armour.
- **APCR:** Armour Piercing Composite Rigid ammo was the first step in the evolution of the AP round. This type of ammo is essentially an AP shell with a high-density core, usually made of tungsten. The higher mass gives the shell greater inertia, lending it greater penetrating power.
- **APDS/APFSDS:** This is the most advanced type of AP round used by the military today. The round is called an Armour Piercing Fin Stabilized Discarding Sabot or just APDS if it doesn't

have fins. This round is essentially a slim metallic rod that's encased in a sabot and fired from a gun. This thin metallic rod however, is made from the densest materials known to man and the US uses depleted Uranium. The kinetic energy of this round is immense, punching through most armour with ease.

- **HE:** This shell is primarily used to take down soft targets—troops and trucks. It's basically a high explosive charge that's encased in a relatively thin shell and is designed to explode on contact.
- **HEAT:** High Explosive Anti-Tank shells are a very innovative type of shell used against armour. HEAT rounds don't rely on kinetic energy to penetrate armour. Instead, they rely on the in-built explosive charge and the design of the warhead to propel a

KONTAKT-5 ERA

The best example of ERA in the modern age is the Kontakt-5 modules developed by the Russians. This ERA is so good that most NATO forces deem it to be impenetrable to their current AT ammo, including their Uranium-based APFSDS.

needle of super-heated copper through the armour. This means that the effective range of HEAT rounds is from zero to infinite. It is however, only effective against plate armour and low-grade composite armour.

- **HESH:** High Explosive Squash Head ammo hosts a head that's loaded with plastic explosive in a relatively soft casing. On impact, the head flattens against the armoured plate and detonates, causing the inner side of the armour to spall, i.e., unleash a cloud of high-velocity metal shards, flakes from the armour itself, that can prove lethal to crew and equipment. This ammo is useless against spaced armour. 🇷🇺

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THE FUTURE SOLDIER

No matter how modern the rest of the armed forces, it's the infantrymen who are indicative of the true power of the armed forces. We take a look at the modernisation efforts of various armed forces the world over.

Anirudh Regidi

The heart of every army is the infantrymen. Every military operation is designed around keeping the soldier alive and well, whether it be via the employment of drones, the CAS, etc. As long as the soldier still lives, an army can still fight. To achieve this goal, many armies the world over are working on various future soldier concepts including India's own F-INSAS program (Futuristic Infantry Soldier As a System). The goals of such programs are very simple, to increase the lethality, survivability, mobility, battle command, and training of their soldiers. The following aspects of the basic infantryman are all set to change in the near future.

A HIGHER CALIBER

The first, most basic step in increasing the lethality of a soldier is by giving him a weapon that is more effective than his enemy's. The primary combat weapon of any infantry soldier is his assault rifle. It comes in many shapes and forms, from bullpup layout of the L82A1 to the standard M-16 layout.

The bullets that these rifles fire are of various calibers and each have their distinct advantages and disadvantages. The standard NATO round is of the 5.56mm caliber, whereas the soviets and countries of the soviet bloc rely on the 7.62mm round. The NATO round is smaller and lighter and hence has lower stopping and penetrative power at medium ranges, but it's far more accurate and can travel farther and faster than the 7.62mm soviet rounds. On the other hand, the 7.62mm round offers amazing penetration and

stopping power but doesn't have the range and the heavier round means that the recoil is significantly higher.

The problem is that the 5.56mm now is a bit inadequate for when faced with modern infantry armour and the 7.62mm is unnecessarily powerful and inaccurate. The answer is a compromise between the two calibers. Known as the 6.8 remington, the round actually has a caliber of 7mm but offers a good compromise between range, velocity, stopping power and accuracy. This will most probably be the round of the future.

TARGETING COMPUTERS

Sniping has always been a fine art and it takes rigorous training and mental conditioning to make a good sniper. A sniper

needs to be aware of his breathing and has to time his shot perfectly. This is where the modern targeting computer comes in. The current spotter-sniper team is usually equipped with a ballistic computer that can give estimates as to where a bullet will drop based on various factors that can be entered into the computer.

TrackingPoint, a startup based in Texas has come up with a sniper scope that makes all the adjustments for you. Think of it as a "smile-detection" shooting mode on cameras that take the picture only when everyone in the picture is smiling. The in-built computer and the in-built range finder will do all the calculations for you and can, if you wish it to, take the shot when the timing is just perfect.

Now this is just a startup we're talking about, but many armed forces the world over have been experimenting with similar technology for a while now and while they don't claim to do what TrackingPoint claims just yet, that's the goal they aim to achieve.

BATTLEFIELD NETWORKING

Another aim of the modernisation of the future soldier is the connected soldier. Information is key on the battlefield and when you don't have information on your own troops, you know that you're in a tight spot. The hope is that troops can be equipped with GPS sensors and various encrypted radios that will allow them to communicate with each other and with the commanders themselves.

In this age of the Internet we can't really imagine a world where Google or

OICW

The Objective Individual Combat Weapon or OICW was supposed to be to replace the M-16 that was the de-facto weapon for NATO soldiers at the time. The Weapon was supposed to incorporate an assault rifle, laser range finder, target designator, a shotgun, grenade launcher and an all-weather day and night scope. Unlike most such weapons, this wasn't one of those "too-good-to-be-true" dreams. The weapon actually worked as advertised. However, it proved to be too expensive to manufacture and too heavy to be comfortable. One can't have everything we suppose.

needs to be taught to measure distance using environmental markers, adjust for wind shear, bullet drop and atmospheric pressure. In the middle of all this, the

Apple isn't tracking every move you make, in fact, it might very well be that the location of every Internet connected person on this Earth can be mapped in real-time. Why doesn't that work on the battlefield? Well, ever tried connecting to the Internet in the middle of Afghanistan? In Siberia? In the middle of the Sahara dessert? That's the digital divide that military is desperately trying to bridge.

One way they're doing this, a system that was first introduced in the now defunct Land Warrior program, is by adorning their soldiers with an assortment of radios (WiFi and otherwise) that would generate a sort of Personal Area Network (PAN) that would keep, say, a platoon connected with each other. Even if one platoon member carries a more powerful radio, he can communicate with his commanding officers. It's a simple and elegant way of keeping in touch with your troops, though slightly expensive.

BIOMETRIC SENSORS

A no-brainer in games and sci-fi movies, biometric sensors are to be incorporated into soldiers' gear, allowing battlefield commanders, medics, psychiatrists and mad scientists alike can monitor the status of the troops on the field. Everything from a sudden onset of stress and anxiety to a downed soldier, and even the precise nature of the wound is what these embedded sensors hope to keep track of. Coupled with the PAN, this means precise, up-to-date information for, at the very least, your platoon mates.

CLIMATE CONTROL

One of the things that's drilled into a soldier's head is that he must remain cool under fire. The pentagon aims to ensure

that the soldier is exactly that regardless of the situation by incorporating a Microclimate cooling system within an experimental bio-suit that they're hoping to implement sometime in the near future. It's said to provide up to 100 watts of heating or cooling as required.

EYES AND EARS

A soldier has a lot to keep him occupied in combat, equipment to manage, his sector

camera-equipped platform that the soldier can access. Perfect for giving an overview of the battlefield.

As you can see in the image below, the soldier is actually commanding a drone via an Xbox 360 controller and observing the surroundings with his helmet mounted HUD.


Another interesting module that is supposed to be incorporated into a soldier's gear is supposed to be a very precise




Spot the odd one out here. HINT: Someone's not playing by the rules

to cover and his buddies to be aware of. The latest generation of smart helmets aim to take care of all that. Other than accomplishing the obvious, which is protecting a soldier's head from shrapnel and gunfire, the next generation head-gear will work as armour as well as a fully functional computer. An eye-piece will work as a HUD, providing the soldier with all the data he needs just a few centimetres from his face. As a bonus, the eye-piece will also be able to stream data from any UAV/

directional microphone. The directional nature of the device will mean that soldiers can get precise, real-time updates as to the direction of all incoming fire, much like the indicators present in a game such as Call of Duty.

As you can see, there are a lot of exciting new toys in store for the future soldier. Too many for us to cover here, but if you want to know more, head over to <http://dgit.in/FutureForce> for more information. It makes for an interesting read. 

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THE WILD BLUE YONDER

The quest for control of the skies and the sea

Anirudh Regidi

He who controls the skies controls the battlefield. Whoever said that had his head screwed on right. In the quest to find that proverbial high-ground, air supremacy is the highest ground there is (barring satellites of course). Air supremacy grants you full freedom of movement, effective reconnaissance and the ability to lay waste to ground targets with relative impunity.

Helicopters are particularly suited for rapid troop deployments and as mentioned earlier, infantry are key to any military operation and CAS (Close Air Support) is the best way to support them. CAS can be via bombing designated targets, calling in and ranging in effective artillery barrages, spotting the enemy and providing transport and evac as and when required.

To achieve air superiority, a number of means are used. Air superiority fighters are the most exciting example, fast and nimble jets that are designed to make mince-meat of the opposition. When you're on home ground, ground-based radar and missile systems are your best bet, complemented by your own air-superiority fighters of course.

Every nation has its own ideas when it comes to achieving air superiority. Here are some interesting facts.

STEALTH THE DARK SECRET

Stealth is the holy grail of the American military, in fact, it might be the Holy Grail for every military the world over. The dream is to have an aircraft that can sneak behind enemy lines, accomplish its objectives and sneak out. Nobody actually

wants a dog fight. Why should you fight to the death when all you would really like to see is a blip on a scope and, at the press of a button, it's gone. This is the dream. Unfortunately, it might remain a dream for a long time yet.

The problem here is the lack of a completely reliable and unique friend or foe identification system. Essentially, the way things stand, you don't know if that blip on your radar is friend or foe. Current RoE (Rules of Engagement) prevent most pilots from firing at targets unless they've been visually identified and even if you assume stealth works as advertised (which is questionable), it's not effective at visual range.

The second point against stealth is the fact that it is, in many ways, a flawed concept. The primary objective of a stealth

aircraft is for it to appear invisible to enemy radar. Unfortunately, to achieve stealth, most aircraft need to compromise on speed and agility to accommodate the extra weight of the radar-absorbent paint and reduce the infra-red signature of the engines. Imagine if you had an entire fleet of such aircraft, aircraft that you imagined to be invisible and invulnerable, and you launched said fleet against a rival. Suddenly, all your aircraft have been engaged and are falling like flies! What's gone so catastrophically wrong?

The Achilles heel of stealth technology was apparently discovered in the 1940s. The primitive radar systems used by the British in WWII used radio waves operating at long wavelengths and without going into the technical details, these long wavelengths are perfect for detecting stealth aircraft. The Russians were quick to pick up on this and they have been, for more than three decades, building and perfecting anti-stealth radar systems which they've been handing over to anyone who asks for it.

Case in point is the shooting down of the American F-117 Nighthawk by the Serbian armed forces. How did they do it? A little birdie suggested a few modifications to their "obsolete" Soviet radar equipment. Those changes painted the F-117 on its return from a bombing run and taking it down was just a matter of course. A pilot downed behind enemy lines and the ruins of the most advanced American aircraft ever built adorning the walls of a Serbian museum, and this was 15 years ago. How far do you think radars have come since?

IS STEALTH DEAD

Whatever we may feel about stealth technology and its shortcomings, the technology still has its place in military operations and if it wasn't effective, the world's mightiest armed forces will not be vying for it.

It's entirely possible that we're correct in thinking what we're thinking, but we're only civilians and the true potential of any technology in any military application is something that the military themselves are aware of. There might be some self-delusion involved, ideologies being bandied about, but we just have to assume, or rather, hope that they know best.

The F-35 fiasco suggests otherwise of course, but you never know. Within 10 years, the F-35 might be the most fearsome fighter there is. Then again, it might be the biggest failure of all time.

F-35 THE BIGGEST FAILURE IN AVIATION HISTORY?

The most expensive fighter ever produced, the F-35 JSF is supposed to be the star of the USAF. The pinnacle of US aircraft design, the ultimate fighter aircraft ever produced. In reality, the F-35 might be the most expensive failure in US aviation history. Born as a successor to the fabled F-22, the F-35 was designed to replace the entire fleets at the disposal of NATO armed forces. An aircraft that's supposed to satisfy the requirements of the army, air force and navy simultaneously.

Built to accommodate the needs of three different services and ideologies, the F-35 has grown to be nothing more than a massive compromise on all fronts. As it stands, the F-35 is a massive, heavy, lightly armoured, sparingly armed aircraft with limited range, a limited flight time, limited CAS abilities and inordinately expensive. The research funding has gone beyond the trillion dollar mark and for an aircraft that costs 10 times more than the ones it's all set to replace, it's doing a horrendous job. The previous generation aircraft, the F-15, F-16 and F-18 are all more than capable of out-matching the F-35 in most combat scenarios and while the F-35 is stealthy, that's all it has going for it. Oh, and did we mention that by some estimates, the F-35 needs to be serviced for 30 hours for every hour spent in the air?

The most advanced air-force in the world now has 200 seemingly useless stealth fighters, about 1400 conventional fighter aircraft that are at least three decades old and a bill that's running into the trillions with nothing to show for it.

So who's got the best aircraft? Europe and France would beg to differ, but without a doubt, that title has to go

to the Sukhoi Su-35. A mind-bogglingly agile aircraft with a staggering power to weight ratio that can render the wings obsolete. An aircraft that can loop-the-loop around an F-35 looping-the-loop, this Russian marvel can track 10 simultaneous targets and engage four (probably more) simultaneously, it can be equipped with the experimental KS-172 missile with a range in excess of a 100 miles and it's easily the most agile aircraft in the world. As an air superiority fighter, it's simply unmatched.



The most expensive fighter ever built?

BOMBING IS PASSE

Just to clarify, we mean large-scale bombing. It's long been known that carpet bombing, as a means of battering an enemy into submission isn't of much use against a determined opponent. Precision munitions against important targets are far more effective. It was in WWII that the British deemed it wise to carpet bomb the whole of Germany, it later turned out to be a futile effort that wasn't worth the expenditure in terms of cash and man-power both. The same

point was driven home in the Vietnam War as well, where the US dropped as many bombs on Vietnam (in terms of weight) as was dropped in the entirety of WWII. Both instances proved that while massive bombing campaigns might have some sort of psychological impact, the actual military value was not much.

Guided munitions are fast replacing dumb bombs and the fact that massive bombers such as the B-52 haven't been replaced in over 50 years are testament to that fact (and also the B-52's durability).

GUNSHIPS RULE

Close support aircraft have existed since WWII and since the time of the IL-76, it's been proven time and time again that a slow moving flying gun-carrier will do a better job providing fire support for troops than any type of fighter-bomber aircraft. Gunship development didn't really carry forward to the modern age for quite a while, but, necessity is the mother of invention and when US troops felt the need for some sort of real firepower on



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Vietnamese soil, the gunship was born. The original gunship was nothing more than a DC-3 aircraft with a minigun in the door, but even this was so absurdly effective that the Vietnamese ceased all offensive activities the moment they realised a gunship was in the air.

The concept was later fully fleshed out and the result was the fearsome AC-130J Hercules. A behemoth of a plane that was armed with twin 75mm guns, 30mm minigun and a 105mm canon. Coupled with the ability to loiter for hours on end while providing fire support, the AC-130 Hercules gunship was, and still is, one of the deadliest weapons flying in the air today.

DRONING ON

Drones are considered to be the future of warfare. A remote war, a modern one with no mess, no blood and guts and no PTSD. A pilot sits at home and blows up a dam halfway around the world. Is this the ideal form of warfare? Some believe it is. Aircraft such as the Globalhawk have gained worldwide renown and some level of infamy for their ability to strike targets behind enemy lines with impunity. These aircraft may be pilotless drones, but they still cost more to manufacture than three F-15 aircraft. But the savings in terms of human lives? Priceless.

Drone warfare is still in its nascent stages however and while aircraft like the X-37B do pop up on our geek radars from time to time, they're yet to see mass deployment. For now, push-button warfare is a myth. In the future? Who knows what may be.

NAVAL WARFARE

Of all forms of war, naval warfare is the one that might have changed the most since the end of WWII. Ships of that era were massive gun platforms capable of firing tonnes of projectiles in every salvo. Today, ships are smaller, a fraction of the size they once were (barring the aircraft carriers) but many times as lethal. The primary weapon of choice is now the cruise missile, a guided missile system that's capable of precisely laying waste to targets thousands of kilometres away.

Interestingly, while ships do still carry guns, they're piddly in comparison to the 18-inch calibre behemoths of yore. Even armour has come



The DDG 1000, the stealthiest, most advanced guided missile destroyer in the world

down drastically, with low weight and stealthy profiles being given a much higher priority than armour. This is understandable considering that if a missile does get through a ship's defences, it's curtains for the crew regardless of the armour. That said, the chance of a missile, or even a shell, getting through the formidable missile defence systems at the disposal of most ships today is very slim. Also note that guns on naval ships aren't really dead. A 5-inch Naval gun of today is at least as effective, if not more so, than most WWII era guns. Both in terms of lethality and range.

Consider the 150,000 tonne Nimitz class aircraft carrier for example. Outfitted with about 150 (estimated) RIM-7 Sea Sparrow or RIM-116 RAM type missile defence systems, the carrier is in theory able to defend itself against even the most intense missile barrage. This


is even before we consider the Phalanx CIWS (Close-In Weapon System), an automated defence system that can lay waste to incoming aircraft and missiles with its formidable 20mm canon that can unleash a barrage of lead at 75 rounds per minute.

The advancement in drone technology also means that it won't be long before ships will be outfitted with drone launcher and recovery devices (some of them might already be thus outfitted), giving naval vessels unforeseen flexibility in terms of their scope of operation and mission parameters.

STILL NOT SATIATED?

So far, we've only scratched the outer surface of the myriad military tech available today. We haven't spoken about the advancements in missile technology, tandem warheads, automated targeting systems and more.

There have been major advances in laser technology, rumours of space-based weapons' platforms that are already in orbit and clandestine research into weather control. War is a terrible thing and it allows men to get away with doing terrible things. However, we're not here to judge the morality of war, we're here to acknowledge our appetite for destruction and revel in the destructive potential of our species, morbid as that sounds.

We might be a destructive species, but hopefully we have developed enough sense to limit ourselves to simply flexing our muscles rather than slugging it out. 

DDG 1000 DESTROYER

The most modern warship that we're currently aware of is the DDG 1000 stealth destroyer. A so-called Zumwalt class guided missile destroyer, the ship defends itself via the RIM-162 Advanced Sea Sparrow missiles other CIWS systems and of course, its stealth technology and a myriad of other features that are classified for now. Offensive armament is in the form of 155 guns and Tomahawk missiles. Oh and that 155mm gun, it fires a precision guided shell with an estimated range in excess of 180km. Lethal indeed.

worldview

OUR PICK OF THE BEST TECH ARTICLES FROM AROUND THE GLOBE

(MUST READS)



GOOGLE REVEALS AN OS FOR WATCHES

Everyone seems to be hopping onto the wearable tech-bandwagon, and Google certainly seems to be in the lead. After its massively popular Google Glass project, they've come up with Android Wear – an Operating System for smartwatches. Follow the link to know more:

<http://dgit.in/vvAndroidWear>

ROBOTS MIGHT JUST PUT YOU OUT OF A JOB

They might not be powerful enough to enslave the human race just yet, but Bill Gates in an interview admitted that robots will soon be replacing humans in labor-based jobs such as nursing, waitressing and even driving. Needless to say, corporations and governments will have to prepare themselves for any social unrest that might result from the unemployment.

<http://dgit.in/vvRobots>

APPLE'S FORAY INTO HEALTH AND FITNESS

Tech pundits had long suspected that Apple's next phone will include the ability to track various body metrics with health and fitness based apps, and some leaked screenshots from 9to5Mac have all but confirmed the rumours. The app will track various aspects such as your blood sugar, hydration, blood sugar, heart rate and your physical activity.

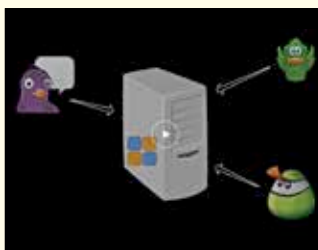
<http://dgit.in/vvHealthBook>

[Ars Technica Corner]

MAKING SMARTPHONES AFFORDABLE



Mozilla has made it clear that its Firefox OS based-phones will be targeting emerging economies, and it recently announced plans for a series of smartphones starting at just \$25. Here's how the foundation seeks to bring internet-connectivity to all with its HTML5 powered apps on its low cost range of devices by Alcatel and Huawei. <http://dgit.in/vvFirefoxOS>



Roll your own IM service

If you're paranoid about entrusting your private chats to a third party like Google or Facebook, setting up your own chat server is pretty easy. Here's how you can set it up in a way that any compatible IM client like Pidgin or Adium can access it:

<http://dgit.in/vvXMPP>



The language of animated GIFs

GIFs are short, animated images that are usually served as a reaction to an incident or a comment. Researchers at MIT Media Labs have noticed that these serve as a better indicator of emotion than plain text, even empathy which is unusual for the internet:

<http://dgit.in/vvGIFGIF>



Standardizing mobile phone chargers

The days of different OEMs shipping their phones with incompatible phone chargers may soon be over. The European Union recently voted in favour of standardizing the mobile phone charger in order to ensure cross-compatibility:

<http://dgit.in/vvChargers>

GOOGLE MAY KILL VOICE

Google's been on a 'spring cleaning' for a couple of years now, and if rumours at 9to5 Google are to be believed, Google Voice may be the next service to face the axe. The almost too-good-to-be-true app allowed users in the US make and receive phone calls for free
<http://dgit.in/wvGoogleVoice>

MAKING THE MOST OF MCDONALDS

McDonalds is universally accepted as a terrible eating option, but what if it's the only option you have? If you're stuck with McDonalds, this handy chart shows you what foods can get you the best (and worst) bang for your buck, calorie-wise and weight-wise.
<http://dgit.in/wvMcDonalds>

GEORGE R R MARTIN'S MASTER PLAN

Game of Thrones is fast catching up with the books. However, the series' creator, George R R Martin has a plan that'll ensure that his books stay well ahead of the TV franchise, which includes the possibility of a mid-season hiatus
<http://dgit.in/wvGeorgeMartin>

INFECTED LINUX SERVERS

Linux is famed for its security, but a recent report published by ESET reveals that nearly 10,000 servers running Linux have been infected by malware that is redirecting users to malware-ridden websites that steal credentials as well as sensitive financial information
<http://dgit.in/wvWindigo>

8 simple tips to improve battery life of your Android mobile phones and tablets

Android OS, being a true multi-tasker, has the propensity to consume high battery life. Thanks to the customization options provided within the OS, you can improve the battery life of your Android device by following these simple tips.

- By Saransh Kataria

When it comes to battery life, no smartphone has a battery that is sufficient enough to fulfill our needs. Every person using a mobile device feels the need of carrying an extra battery with him/her. And, when it comes to Android, the operating system is known for sucking your device's battery within a short time span. Here are a few quick tips which only require tweaking of your device's settings which would easily help you get the best out of your device's battery.

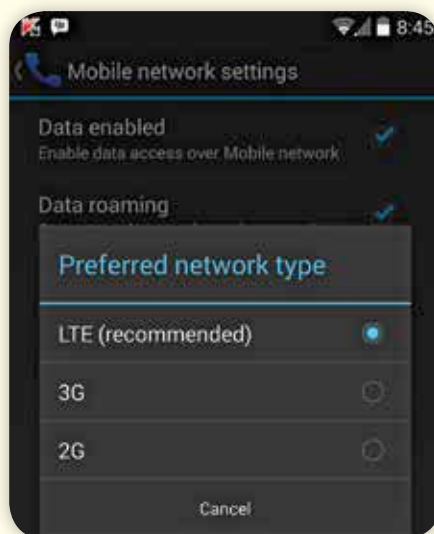
Network selection mode

Though switching to 2G mode from 3G won't save a lot of battery, but it can be a real life-saver if you are low on battery and need to save some juice for crucial minutes later on. Switching to 2G network makes the device consume lesser battery. This is generally because 2G has a better reception and hence your device doesn't have to shout out to the operators every time asking for a connection establishment request. This in turn uses lesser battery.

Note: If you are in an area with great 3G reception, 3G is a better option since it consumes lesser power (that is the whole point of evolving to a new protocol, right?) overall.

Here's how you can force your android to use 2G:

1. Go to the settings menu by selecting the settings icon from your applications.



Switch network to 2G

2. Under Wireless and networks section, click on more.
3. Tap the Mobile networks option and on the next screen, hit the Preferred network type option and you will get three choices on screen.
4. Now simply choose the option '2G' by tapping on it.

Now your Android is running in a 2G-only mode.

Screen brightness

Although auto screen brightness is a safe bet, for overly bright screens, manually setting the brightness would be a better way



Disabling auto, adjusting brightness automatically

if you can do it manually every time. The auto feature is a good addition, but when you do it manually, you can assess at what level of brightness you are still able to read. Also, just in case you are too lazy to do it manually, you can use an application called Lux Lite to do the hassle for you, though it will keep running in the background consuming some battery on its own.

Close background applications

Killing background applications doesn't really improve on your performance (KitKat onwards) but there might be some

WHAT WOULD PLATO TWEET?



Twitter has its share of whimsical accounts that give us our daily dose of laughter. But what if Twitter had existed thousands of years ago? This NY Times article has an interesting analysis of social media against the backdrop of Greek philosophy.
<http://dgigit.in/wvPlato>

GOOGLE DRIVE BECOMES CHEAPER



Google reduced the pricing for its cloud storage service Google Drive, and now its about the cheapest cloud storage around. \$1.99 a month will get you 100GB, and \$9.99 per month will get you a full terabyte of cloud storage space!
<http://dgigit.in/wvGoogleDrive>

STREAMING SILENCE ON SPOTIFY

American funk band Vulfpeck has come up with a novel idea - releasing an album that's nothing but silence, and asking their fans to stream it on Spotify every night when they sleep. As Spotify pays the band for every listen, the band hopes to raise enough funds to go on tour.
<http://dgigit.in/wvSpotify>

FLAPPY 2048



Flappy Bird was all the rage last month until the developer took it down. Meanwhile, 2048, a tile-based number game where you need to move tiles to combine them to a sum of 2048 is all the new rage. This website combines both games within a single page!
<http://dgigit.in/wvFlappy>

applications which could be requesting internet data in the background by pinging the servers for requests, ensuring a connection establishment or updating in the background. You should consider killing these applications instead, in order to reduce the energy demands of the device which can be done later on as well. Also, you can restrict background data from the mobile data section to avoid background applications from fetching data and in turn give your battery some boost.

Disable GPS

People are generally smart enough to keep their GPS off when it isn't needed, but what they generally don't do is disable the location reporting and history when they are actually using GPS. These two services are pre-bundled with android and are enabled by default as soon as you turn on your GPS. The motive of these two is not stated clearly anywhere, but they do keep a track of your location and help Google Now and related services use internet to send data to servers. These two, according to Google's help page, are there to improve your experience, but overall they consume a lot of battery power to survey your location. And chances are you are good without these turned on. If you wish to turn these off, you need to go to Settings > Location > Google Location Reporting and disable these.

Moreover, when you are not in need of applications that require your precise location, you can set the mode to battery saving to conserve some battery.

Bluetooth and Wi-Fi

You should keep your Bluetooth and Wi-Fi drivers off when you don't need them to preserve your battery. Also, in case of Wi-Fi, even if it is disabled, the device constantly scans nearby surroundings for

available networks. You should turn it off as well. Head to Wi-Fi settings > Advanced and uncheck the Wi-Fi scanning option. You will have to connect to Wi-Fi manually after doing so but it's worth the effort to prevent it from hogging on your device for power.

Wallpapers and Themes

Live wallpapers are a flashy and fun thing to have on your device's home screen, but again they take too much battery and you should consider not using them if you really want your battery to last longer.

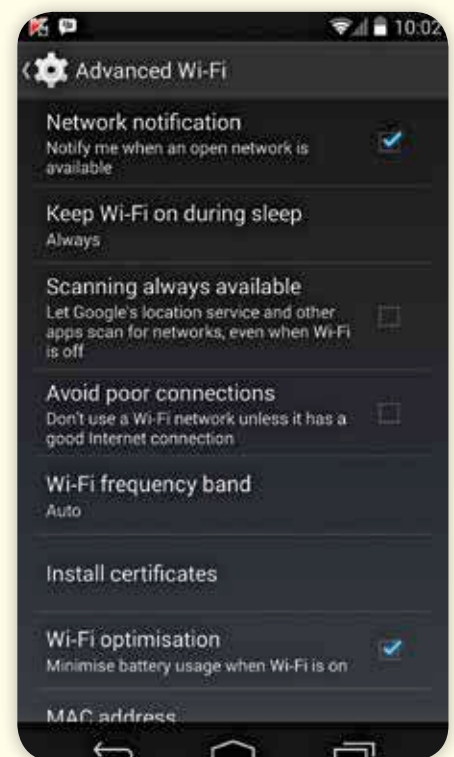
Also, using the default launcher for your device uses lesser footprint (Google Now Launcher) as compared to other launchers and you should switch to it just in case you are low on battery.

Darker themes consume lesser battery as compared to brighter ones.

Disable Google Now cards

Google Now is a great assistant to have and once you start using it, you will find that it is unmatched in quality. Although you may not use all of the Google Now services, they still keep running in the background. So you might wish to avoid the battery drain by disabling the informational cards. For example, "Nearby Places" card, which is a seemingly cool feature, gives you the hangout places nearby that you don't usually travel to. I think it is unnecessary and one could live without it turned on.

To disable specific cards, go to Now, scroll to the very bottom and touch the magic wand icon located at the lower center of the screen. From here you can customize the cards you need and disable the ones you don't. As a thumb rule, cards relying on GPS (such as Travel Time, Nearby Places etc.) will drain more battery. So you can disable those to boost your battery a bit.




Why scan for Wi-Fi when you don't need to?

Sync

Sync is a feature in which your device constantly contacts Google's servers for downloading emails, calendar records and other information in the background. This uses loads of battery power and you should shut it down when it is not needed. Don't worry; everything will be synced later when you turn it on again.

Note: If you are really low on battery, switching to airplane mode is the best way to save some battery to be used later when it's crucial.

If you are still unsure of what is draining your device's battery and wish to monitor battery usage statistics by various applications, you can do so in the battery section of the settings. 

NUMBERPHILE

A channel not just for math nerds, but for anyone with a passing interest in numbers and logic, Numberphile is a

Numberphile
Think my brain is big

repository of fascinating videos. From proving that the sum of all positive integers is a negative number, to wonderful observations of Pi and much more, there's a lot you can learn from this channel.

<http://dgit.in/wwNumberphile>

(QR Code)

For a list of all the links from this section, head over to <http://dgit.in/wwapr2014> Or point your phone to the QR code above

(PRODUCT LAUNCHES)**LENOVO YOGA 2 PRO**

Lenovo's latest ultraportable laptop/tablet hybrid features an eye popping 3200x1800 pixels packed into a 13.3 inch screen, an Intel Core i5 Haswell CPU, 4GB of RAM and a 128GB Solid State Drive. The base version starts at \$999 (approx. Rs. 61,000)

NOKIA X ANDROID PHONES

Nokia's long rumoured Android device finally saw the light of day in the form of the Nokia X - an Android powered low-end phone. Priced at Rs. 8599, the device does not run the usual Google apps and services, instead you get Windows goodies.

OPPO FIND 7

Oppo's latest flagship, the Oppo Find 7 was unveiled in China this week, featuring a stunning 2560x1440 5.5inch display and a 13 megapixel that uses software enhancements to capture images at resolutions of 50 Megapixels and record 4K video.

WORD JUMBLE

I	G	P	E	E	R	S	Q	X	Z	J	E	U	H	D	B	V	N	J	C
E	N	L	N	B	Q	E	D	M	N	N	C	L	M	I	O	T	U	O	J
V	I	E	M	A	E	W	A	C	C	C	Y	H	Y	G	T	F	T	S	R
J	H	T	B	Y	V	L	T	R	Q	R	W	H	A	I	R	B	B	C	X
G	S	H	V	V	W	V	Y	T	L	V	H	Q	Z	T	O	P	D	K	S
U	I	M	T	A	S	P	E	J	N	Y	J	E	K	A	J	R	N	J	N
A	H	K	R	L	T	S	L	N	H	E	U	G	O	L	A	N	A	E	E
S	P	E	I	I	S	E	H	E	F	V	K	U	E	X	N	U	F	L	T
J	X	V	O	P	Y	G	X	V	J	M	X	V	L	V	A	Y	W	E	H
M	W	N	A	Z	L	B	R	E	T	U	O	R	M	P	D	A	H	V	E
Y	P	M	S	H	I	T	S	T	E	L	K	R	A	M	K	O	O	B	R
S	P	A	J	N	F	C	K	T	L	H	L	O	C	O	T	O	R	P	N
S	U	R	B	J	D	D	O	P	V	B	S	S	A	Q	R	K	O	F	E
S	B	O	R	T	H	G	W	P	H	Y	E	W	F	P	N	R	D	Z	T
Z	C	O	P	L	U	G	I	N	S	H	P	B	C	V	T	O	H	O	W

**ABSOLUTE
TIMEPASS**

There are 15 technology terms hidden in the grid. Can you spot them all?

Top 3 YouTube Picks

Make sure your boss doesn't catch you goofing off with one of these videos playing on your screen

**Edward Snowden's TED Talk**

The American whistleblower hasn't relaxed his stance on the issue of privacy. In a recent TED Talk, Snowden speaks via video conference: <http://dgit.in/wwSnowden>

**The making of the Moto 360**

Smartwatches have been reserved largely for uber geeks and industry insiders. Here's glimpse into the design process: <http://dgit.in/wwMoto360>

**Idiot's guide to smart people**

A hilarious video tells lay-people, or "idiots" on how to avoid coming across as stupid in social interactions with smart people: <http://dgit.in/wwIdiotSmart>



Making successful games: Alok Kejriwal, CEO and Co-Founder, Games2win

Guide to Nokia X: Installing Android apps, and how to root the device



So you just got yourself a new Nokia X but the new interface has left you confused? Don't fret. Read this guide to get you started with the latest Android device from Nokia.

We're only concerning ourselves with two important aspects here – accessing Google Play Store apps and Rooting the device.

Although the Nokia Store provides a good number of the basic applications necessary but the list of required applications is far from complete yet. The good news is that you can install .apk files from other sources just by allowing the installation from unknown sources in security settings. But finding .apk files

can be a pain too. So you can use alternate markets such as 1mobile market or the amazon store which are good alternatives to Google's Play Store. Note: If you are thinking of installing Play Store using this method, it won't work. It requires Google's Play Services. Rooting your device might be able to get you Google Play services (guide on rooting Nokia X coming soon).

Rooting your device: If you are among the experimental types, you might consider rooting your phone to get complete access! Many people have done so successfully to get full access to the device's system.

Security: Data is always a crucial aspect of the device; especially in times like these

when the phones are becoming smarter every day. The Nokia X comes with 3 security methods

Screen security: The screen can be locked by two methods, password and PIN, the normal security techniques on almost every device these days.

Encryption: As in android, you can encrypt everything stored on the device's memory so that only authorized people can access it. As opposed to Android, the data on Nokia X can only be decrypted after a factory reset.

SIM card lock: A common feature that has existed on Nokia phones for a long time now is also present in Nokia X. It prevents people from accessing contacts stored on SIM card. >

*side panel



*How developer is the king of the modern times

>>The ever changing landscape of platforms and emergence of cloud computing has ensured a lot of companies pay great attention to developer's needs and demands

<http://dgit.in/1jqAWPg>

GDC 14

*Record-breaking GDC 2014

>>This year's GDC, held at San Francisco last month, had the largest attendance till date: 24,000 devs and over 400 sessions. Will that result in record-breaking games, though?

<http://dgit.in/1m3QyFI>

*Coding for different platforms

>>There's this school of thought that a good iOS developer doesn't necessarily make you a good Android developer.

<http://dgit.in/1dKDSyo>



For latest news, updates and features, join us on Facebook at **facebook.com/devworx.in**

Introduction to Automata Theory

>>Find out what it takes to program an automaton, apart from the four main components of its component theory> by Ashesh Lal

Automata theory is the study of abstract machines (like finite state machines), automata (self-operating machines) and the computational problems that can be solved using them. It comes under the broad topic of Theoretical Computer Science, under Discrete Mathematics. Essentially, Automata Theory is the study of self-operating virtual machines to help with the logical understanding of input and output processes, with or without intermediate stage(s) of computation/function/process. Automata play a major role in theory of computation, compiler design, artificial intelligence, parsing and formal verification and have been around since ancient times.

Automata (pl.) are defined to study useful machines under mathematical formalism. So, the definition of an automaton is open to variations according to the “real world machine”, which we want to model using the automaton (sg.).

There are four main components of any automata that define its variant:

1. Input
 - a. Finite input: An automaton that accepts only finite sequence of symbols.
 - b. In finite input: An automaton that accepts infinite words (ω -words). Such automata are called ω -automata.
2. States
 - a. Finite states: An automaton that contains only a finite number of states.
 - b. Infinite states: An automaton that may not have a finite number of states, or even a countable (http://en.wikipedia.org/wiki/Countable_set) number of states. For example, the quantum finite automaton or topological automaton has uncountable infinity of states.
3. Transition function
 - a. Deterministic: For a given current state and an input symbol, if an automaton can only jump to one and only one state.

- b. Nondeterministic: An automaton that, after reading an input symbol, may jump into any of a number of states, as licensed by its transition relation, i.e. the automaton non-deterministically decides to jump into one of the allowed choices.

4. Acceptance condition

We will be primarily concentrating on finite or countable infinite input on finite state machines in the rest of this article.

Deterministic Finite Automata (DFA) and Non-deterministic Finite Automata (NFA) have the same computational power and both are capable of recognizing the same languages, called the regular languages that regular expressions can describe. A tutorial on regular expressions can be found on <http://regexone.com/>.

Now if we take the language to be $L = (a|b)^*abb$. Then L will be the set of strings that are accepted by this regular expression, which is read as “a or b, zero or many times, followed by the string abb” or “all the strings in the alphabet $\{a,b\}$ that end in abb”.

Language $L = (a|b)^*abb = \{abb, aabb, babb, aaabb, ababb, baabb, bbabb, \dots\}$

superscript (*) - Kleene closure - zero or many
 superscript (+) - Positive closure - one or many
 ϵ - Epsilon - empty string

The NFA for this language L is depicted in Fig. 1. States are represented by numerals in circles and the transition between states is described by alphabets over the arrow. The start state is 0 and the end state (or accepting state) is 10, which is denoted by the double-circle. Sometimes the end state is realized by making the said state accept the transition labeled #.

An NFA accepts input string x if and only if there is a path in the transition graph from the start state (0) to one of the accepting states,

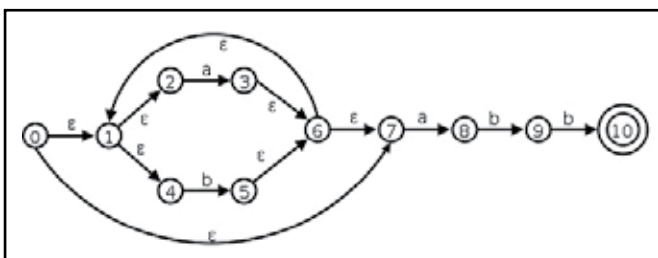


Fig.1 This transition graph is an NFA for the regular expression $(a|b)^*abb$

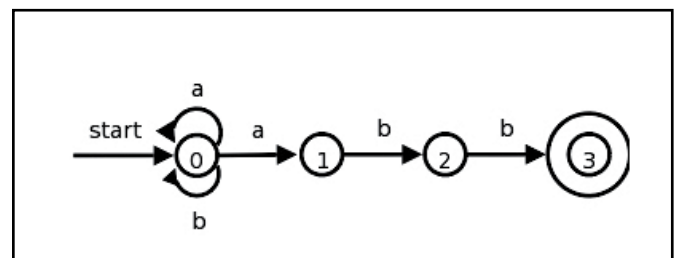


Fig. 3 This is the transition graph for the regular expression $(a|b)^*abb$

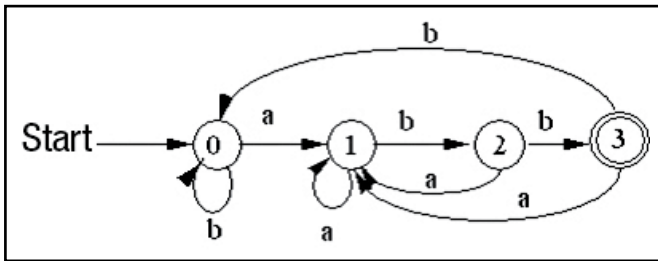


Fig. 2 This transition graph is a DFA for the regular expression $(ab)^*abb$

such that the symbols along the path spell out x. So, the input string bbabb is accepted because of the path 0-1-4-5-6-1-4-5-6-7-8-9-10.

[optional] Q. Find out three strings that are not accepted by the NFA for L.

A DFA is a special case of an NFA where:

1. There are no moves on input ϵ , and
2. For each state s and input symbol a, there is exactly one edge out of s labeled a.

This is the reason why a DFA shares the same notation as an NFA.

While the NFA is an abstract representation of an algorithm to recognize the strings of a certain language, the DFA is a simple and concrete algorithm for recognizing strings. The DFA for L is shown in Fig. 2

The input string abbabb will be accepted by this DFA because of the path 0-1-2-3-1-2-3. Note that a string will be accepted by the DFA only if it ends on the end state (3).

Deterministic Finite Automata (DFA) is the most standard variant and was invented to model and study real-life scenarios that the Turing Machine (https://en.wikipedia.org/wiki/Turing_machine) was unable to demonstrate. Since the DFA is used to implement or simulate when building lexical analyzers, it is fortunate that every regular expression or NFA sharing the same language can be converted into a DFA, which is beyond the scope of this article.

[optional] We can represent either an NFA or DFA by a transition graph, where there is an edge labeled 'a' from state 's' to state

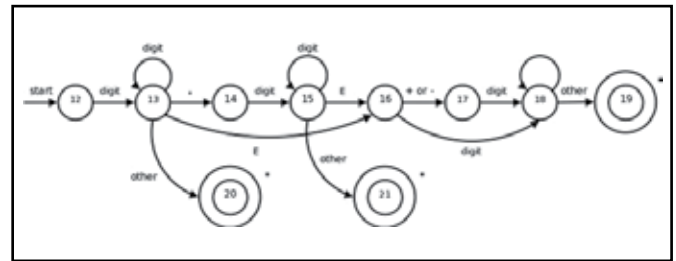


Fig. 4. This is an example of how the transition diagram looks like in automata theory

't' if and only if 't' is one of the next states for state 's' and input 'a'. In this graph, as shown in Fig. 3 for language L,

- a. The same symbol can label edges from one state to many different states, and
- b. An edge may be labeled by ϵ , instead of or in addition to symbols from the input alphabet.

For searching *.java files, a DFA can prove to be very useful if the filename is composed of ASCII characters (real language) only.

Automata simulators are used to learn and research automata theory. An automata simulator takes as input the description of an automaton and then simulates its working for an arbitrary input string. The description of the automaton can be entered in several ways. An automaton can be defined in a symbolic language or its specification may be entered in a predesigned form or its transition diagram may be drawn by clicking and dragging the mouse. Well known automata simulators include Turing's World, JFLAP, VAS, TAGS and SimStudio

In conclusion, each model in the automata theory plays important roles in several applied areas. Finite Automata are used in text processing, compilers and hardware design, and Context-Free Grammar (CFG) [http://en.wikipedia.org/wiki/Context-free_grammar] is used in programming languages and artificial intelligence and also for study in human languages.

[optional] Let's see if you can figure out what this transition diagram accepts as a language.

Answer: Unsigned numbers (with E used as exponent for base 10).>

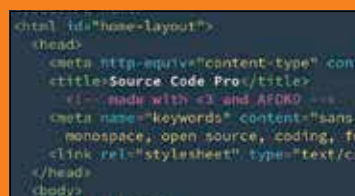
*the source code



DirectX 12 programming

>>The biggest piece of good news to PC gaming is Microsoft's decision to enable low-level GPU access. This will percolate down to consoles and mobile GPUs, too.

<http://dgit.in/NOvVkc>



Facebook streamlines Hack language

>>Facebook's dedication to streamlining programming language Hack (used internally) by making it open source

<http://dgit.in/1h5vTQN>



DARPA's contribution to open source software

>>While the Pentagon can be secretive about its operation, it's surprisingly open about the software projects it funded

<http://dgit.in/1iwWLSQ>



>>"We love Adobe to make simple, easy games." >>

>>We try to learn a few tricks of the trade when it comes to making a successful game from Alok Kejriwal, CEO & Co-Founder, Games2win > **By Jayesh Shinde**

What would you say is the USP of your games?

The games are all about what you do or cannot do in real life, presented in a gamified manner! Example, young girls want to take care of small babies – hence the success of our #2 app in the world – Super Mom; Young men want to learn driving – hence the success of our #1 game in the world – Parking Frenzy!

We make real life fantasies come alive via casual gaming.

Your games attract a lot of female players. Why do you think that is? Is it an untapped / ignored market?

The reason behind it is partially based on the fact that girls prefer to play simple, casual, snacky games. Most of them do not spend hours playing console games and have simpler gaming devices – like iPods, iPhones and Tablets at their disposal!

Apart from creativity, what would you say is the #1 contributor to your games' success?

Creativity is 50 per cent of the business. The rest is sheer perseverance and analytics, analytics and analytics! We measure everything that moves in a game and keep iterating on it to make it better and better.

As a developer what different tools do you use to develop games? Why them specifically?

We love Adobe flash to make simple, easy, browser and mobile games (Adobe Air). Many of our complex games are now being built on Unity. We use many third party analytic tools such as Flurry to keep track of various things in our games. We deploy many ad networks inside our games for monetization, served via mopub.

As a traditional web, browser-based games developer, how did you transition to developing mobile apps? Tell us about this journey?

This was a very tough journey! I remember a very particular incident in my house that triggered this shift in my outlook. One day, my wife was looking for a laptop and my elder daughter said, "Mom, ask Mala where it is" (Mala is our house help).

That's the day I realized that my kids who would fight for the laptop in the house had forgotten about it – they were so involved in their iPhones and tabs!

We approached the shift with lots of caution and applied a very simple logic – the consumer was the same, only the form factor was changing (desktop, laptop to Phone). So, the same consumer would like to play our most popular games that they liked on our websites, on their mobile phones too!

From our 700+ flash games library, we chose the top 10 games and transitioned them to mobile, using Adobe Air and other such tools!

You're a big proponent of Adobe Gaming Solutions. Why is it so? What makes it so different from other development platforms?

Adobe's "Flash" is Godsend. It's simple, and easy to use. Lots of talent in India knows flash. The best part of Flash is that it allows us to 'export' our games to mobile, using Adobe Air and saves us the headache of building the game all over again!

What can you tell us about your future game development endeavors? Any games that we should look forward to? Any particular focus area?

We are heavily concentrating on two gaming genres that we understand – Car Racing (Parking) and Dress up. We want to delight India with a special focus on Indian games and you will see the Indianized versions of our best performing games being released soon!

Any advice to budding game or mobile app developers?

Mobile games and apps is a long, tedious and punishing business. It is a hits and misses business and while you may think that 'your idea is the best in the world', there is no guarantee that you will have a hit on your side.

Having said that, the glory of making an Angry Birds or Candy Crush is overwhelming and that's the dream worth fighting for! >

*coding matters



What are devs? A view from the future...

>>A flight of fancy with an eerily plausible depiction of the breeds of developers in the future. How will history record their feats? And how will their efforts alter the fate of our civilization?

<http://dgit.in/1jqEGAh>



Learn to code in a fun, exciting way

>>Try out Code Avengers for interactive online tutorials that teach you how to code games, apps and websites with HTML, CSS and JavaScript in a fun way.

<http://www.codeavengers.com/>

GOOGLE DOCS

Google Docs just got a booster dose and it's more potent than ever.

Make use of Shortcuts

To be a master, your fingers must float over the keyboard making tiny, intermittent movements. These tiny actions add up to form the perfect document. And unless you have mastered the keyboard shortcuts available to you on Google docs, you will never realise its true potential.

Fortunately, these shortcuts can be brought up whenever you want through yet another shortcut. Hit (Ctrl + command) on a Mac to open up the shortcut menu and your are on the steady path to true mastery. The menu can be opened in a separate window too and can be pulled up whether you are working on a spreadsheet, document or are even browsing the list of documents on your drive.

While the basic shortcuts like the ones for bold, italics and underline are still the ones you would find on just about any word processor or spreadsheet, interesting ones like “~~strike through~~”, superscript and subscript can be brought up with two or three button combinations.

If you've ever noticed on your Gmail inbox, there's a line of dots on the extreme left of the



Google Docs.....20

iPad22

Fight spam24

{ Tips & Tricks has its own page numbers, and does not follow the rest of the magazine's page numbers. This is done to ensure that you can cut out and save T&T in a separate folder for later reference. }

conversation. Long-pressing the left mouse button here has the same effect as the gesture has on windows explorer – you can move your selection around with your arrow key. On Gmail and Google docs on the other hand, you can move that little selection bar up and down with the J and K keys. Go ahead, give it a whirl. Two more interesting things come up with the X and S keys. You can check the little box and toggle the star on or off, respectively.

PC shortcuts	
Common actions	Shortcut
Select all	Ctrl + A
Copy	Ctrl + C
Cut	Ctrl + X
Paste	Ctrl + V
Undo	Ctrl + Z
Redo	Ctrl + Shift + Z
Compact controls	Ctrl + Shift + F
Print	Ctrl + P
Insert or edit link	Ctrl + K
Open link	Alt + Enter
Show common keyboard shortcuts	Ctrl + /
Save	Ctrl + S

Note: Every change you make is automatically saved in Drive

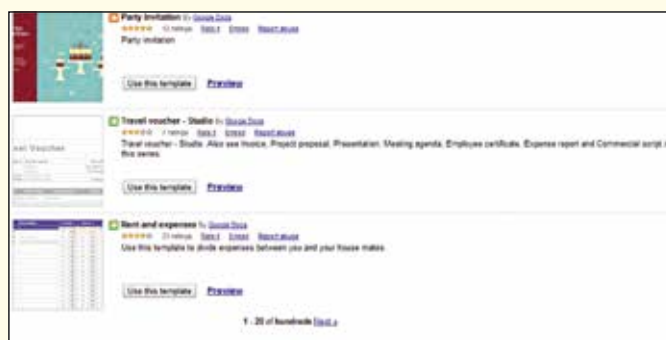
Ctrl + S, a thing of the past.

where you can choose from literally thousands of pre designed templates. Everything from cheese presentations to professional résumés can be found and obviously you can contribute to the extensive database.

When you submit your template to the online database, the entire Google-verse has access to it, so it wouldn't be advisable to do that if you've prepared client specific invoices and what not. The reasonable walk around to this conundrum is pretty simple.

Once you've uploaded/ created your precious document, it's time to get sharing and privacy settings in place. Then, hit File > Make a Copy and check the box if you want to share it with other people and rename it.

Once the copy is made, it opens up in a new tab for you



One amongst hundreds

Handling Templates

Fresh out of ideas on the look and feel of your next presentation? Is the office newsletter that you begrudgingly prepared looking as dull as the only co-worker who bothers to read it? Well, look no further! For the good people at Google have kept alive the template option from the days of yore.

You can either Google it and hit the 'Use Template' under the template of your choice or access from your spreadsheet/presentation/document by hitting File > New > From template.

This will automatically take you to Google's template gallery

to begin working. Sure it's not as cool as a template and you will need to create a copy every single time but it works.

Managing add-ons

A new addition to the wonderful world that is Google – docs are add-ons and keep up with the ethos of Google Labs which is a playground for Google's more adventurous users – users can actually create their own add-ons.

To take a step back, add-ons are extensions for your docs just like the ones you have for your browser. Add-ons can be accessed by hitting



the Add-ons button found on the menu bar.

Sound Smart

Every child's dream is to own their very own the-sasaurus and wreak havoc on unsuspecting civilians. Then, childhood is ruined on receiving one and finding out that it is a 'synonym finder' or a 'word-book'. The first, most useful and simplest add-on you will add is the Thesaurus. A free app that installs in minutes, you can look up synonyms by highlighting the word in question > tapping the Add-ons button from the menu bar > clicking on thesaurus and selecting 'Find Synonyms for Selected Word'

The thesaurus opens up on the right and provides synonyms both in noun and verb forms along with the antonyms. Once the thesaurus is open, you can search for synonyms by double clicking a word or selecting it and tapping the Search button on the thesaurus.

Collaborate

If you've ever done a group assignment or collaborated on a presentation with a whole bunch of people, you will know that how frustrating it is to get everybody on the same page and how the frustration grows manifold when somebody has made important changes and hasn't informed the rest of the team.

While the former was solved when Google docs was introduced, the latter was still a problem until LetterFeed introduced Track Changes.

Once applied, track changes keeps track of all the changes that have been made on the document on the sidebar to the right. Changes made by other users appear in the sidebar which displays insertions and deletions. The changes can be applied by simply clicking the green check button to approve



Not too tabby

and the red 'x' to discard it making life much simpler.

Similar to Track Changes is yet another app developed by the same developer. Named 'Messenger', this add-on makes collaborating even simpler. The changes made to the document are shown in a green font with a green highlight and deletions are displayed in a red font with a pink highlight.



Broth has never tasted better

It even tells you if the other person has viewed the changes. Links to articles and images are previewed automatically and can be added by merely dragging and dropping it where you want it to be placed on your file.

Rediscover Clip-Art

No presentation is complete without clip art. Pictures that

can be stretched and shrunk over and over again until they are just right and give your presentation that extra touch of emotion

Sure it now sounds lame to use clip art but that is slightly attributed to the fact that the clip art back in the day were very basic and the number of quality illustrations available were equally limited.

ClipArt on the other hand promises to be a game changer. Not yet available for Presentations, it has a database of over 50,000 images that are free to use, ClipArt adds much nicer feel to your document with its high quality illustration done in a contemporary style.

A more mature audience, on the other hand, would appreciate Gliffy diagrams. Gliffy diagrams allow you to create things from flow charts to floor plans for your document.

Using Gliffy diagrams involves signing in to Gliffy with your Gmail id and all your designing end up taking place on their webpage. The created designs are then updated on the Gliffy diagrams sidebar for you to drag and drop wherever you desire.

Spread 'em Wide

While add ons are readily available for documents, for spreadsheets it kind of behaves like Schrodinger's cat. While it is officially available for spreadsheets,

the version of spreadsheet on which it is available isn't.

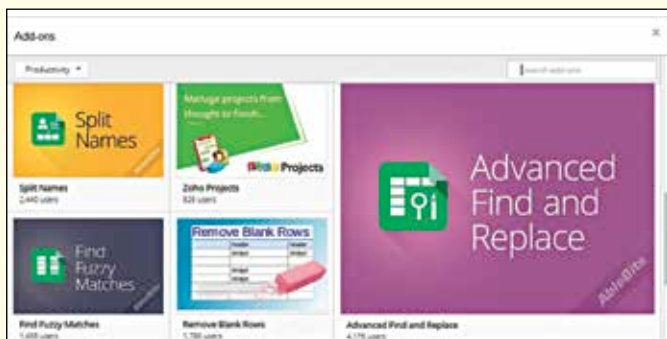
The new Google Sheets had been built from the ground up and cell and formula limitations have all been removed. Since it's still in the test phase where several features including spell check are not available and can be turned on from the Editing section of Settings in your Google Drive.

While the number of add-on users for documents run around 50,000, at the most, the users here are less than 10,000 at the most. The kind of add-ons available too are mostly ones that bypass complex filtering formulae that are normally used in spreadsheets. So erasing blank fields becomes super easy with 'Remove Blank Rows' and names can be split across multiple rows with 'Split Names' without breaking in to a sweat.

A few interesting add-ons however are 'Find Fuzzy Matches', 'Advanced Find and Replace' and 'Template Gallery'.

Find Fuzzy Matches really comes in handy when you are working with duplicates that are spelled slightly differently or even contain spelling mistakes. With three simple parameters, you can narrow your search and you can even correct the errors in your sheet.

Advanced Find and Replace not only allows you to search according to name or number but also using formulae and a whole bunch of other param-



Slow and steady

eters. Finally, template gallery, also available for documents gives you a cartload of templates that fit your needs.

Write some code

Google, being as awesome as it's known to be has actually provided users to create their own add ons. If you know HTML, CSS and JavaScript, you too can become a developer for the add ons thus completing the circle of 'for the users, by the users'.

IPAD

There's always something more that you can do with your iDevice. With frequent software updates and various "hidden" gestures, there's always an easy way to do your work on your iOS device. If it's not prominent on the screen, it might just be a swipe away. Here we look at a few tips and tricks that will make your iPad experience even more convenient than it already is.

Control the sound of music

While listening to music or podcasts on your iPad, use the center button on any Apple-compatible earbuds with a remote to control the player. Press once to play/pause, press twice to go to next track, and press thrice to go to previous track.

Dismiss a notification

You're checking out pictures with your friend, and sud-

denly a text arrives. You don't want him to read your personal conversation. Swipe from right to left and quickly get rid of the banner notification.

Tap and scroll to top

You scroll down and down looking for an old email or in any other app, but to come back to the top, do you keep scrolling back up? What you probably don't know is that you can tap the top bar of the app which will take you right back up.

Picket your device

While Guided Access only restricts the user to one app, it is not always feasible. You'd want to let others use your iPad, with certain checks. For example, you don't want them to delete any app, or purchase new ones. You'd want to filter out explicit content, or restrict access to Photos, Contacts and other data. You can set all these up and more by going to Settings > General > Restrictions. Enable Restrictions and set a passcode. You'll be needing that passcode later to disable it.

Type lightning fast

Even though iPad is everything that you want and more, we all agree that it is not really convenient to type and text on it. It's not comfortable like a full-fledged computer keyboard, nor is it handy like a qwerty phone.

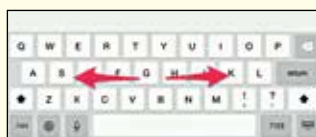
So what do you do? You switch your iPad's keyboard to Thumb mode. You swipe two fingers across the keyboard, in a splitting action and voila! Now you can type with thumbs using both your hands. You can use the "dock and merge" button on the bottom right corner to drag the keyboard up and down. Or you can just press and drag the "dock and merge" button up in the original keyboard to split and move it around. Not only does this facilitate typing, but it also allows for more room in the viewing screen. The keyboard doesn't hide half of the screen anymore.



Backspacing in your calculator

Save Google Maps offline

You might find yourself in a foreign land, where your cellphone network doesn't work, or if you have an iPad that's only WiFi enabled. But that shouldn't stop you from using your iPad as a navigator. While you still have internet access, say at the airport or a lounge, look for the place you want to go to in the Maps and bookmark it. You can access the Maps even after you lose internet access. Now you'll never lose your way!



Change your Keyboard from this

Let Siri set your alarm

More and more interesting voice commands can be used to have Siri do your work. Use this simple command before you sleep, and Siri will wake you up in time.

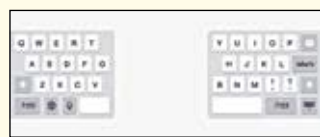
Use your finger to erase

So you have a long list of numbers, with a lot of confusing calculations. The Calculator app in your iPad is right there to "solve" your problem. But what if you typed a wrong digit? You'll have to clear the whole number. Now isn't that awfully irritating? It isn't obvious but there is the provision of a backspace in the Calculator app. Just swipe your finger (in either direction) on the number to delete the extra digit.

"Baby-proof" your iPad

Guided Access, when turned on, prevents users from accidentally doing something in an app, or tapping somewhere they are not supposed to. Next time a child wants to play on your iPad, turn on Guided Access and prevent your gadget from any accidental or intentional tampering. It keeps the iPad restricted to a single app, and allows you to control which features (parts of the screen) are accessible.

It's fairly easy to set up. First, turn on Guided Access by going into Settings > General > Accessibility > Guided Access. Also turn on the Accessibility Shortcut. Now go to the app that your child wants to play with, and triple-click on the home button. Then select the areas on the screen that you don't want to be touched. Set a



To this



Notice the camera button?

passcode and “Start” the Guided Access. It also disables the home button, so the user is restricted to the opened app. Triple-click the home button and enter the passcode to end the Guided Access.



Do away with the selfie-arm!

This will be a boon for those girls who click a picture of themselves for every expression. Plug in your earphones (works even with a bluetooth headset), open the camera app and use the volume buttons to click pictures. Press and hold the button to take a burst of photos. Now you won't have to be embarrassed about clicking selfies, 'cause no one will know.



Take a perfectly timed photo

If you have restricted the Control Center on the locked screen of your iPad, you need to unlock it every time to access the Camera. But there is another way which is simple, but God knows why is it less prominent. There is a sleeky camera icon on



Detachable keyboard for iPads

the bottom right corner of the screen. Swipe it up to launch the Camera app bypassing the unlock screen. This nifty little trick should come in handy at a photo-worthy event, or when someone else is using your device to click pictures but you don't want to unlock your phone for them.



Convert iPad to laptop

By now, we all have made our peace with Apple's limited Bluetooth connectivity, and we have found other ways of sharing data between our iDevices and other non-Apple devices. However, Apple doesn't really restrict Bluetooth headsets and keyboards. An external keyboard offers tactile advantages of real keys over the iPad's touchscreen keyboard. You can connect almost ANY Bluetooth keyboard to your iPad (or iPhone for that matter), without sacrificing the iPad's portability and touchscreen features.



Be a short-cut ninja

There are a couple of keyboard shortcuts that might save your time. When finishing a sentence, tap the spacebar twice to append the sentence with a period and a space, so you can start the next sentence.

If you text a lot but hate using phrases like “omg”, “fyi”, “afk” and the like very often, you can use the Keyboard shortcuts. Go to Settings > General > Keyboard > Add New Shortcut and create a shortcut for your frequently used phrases. This can be a real time saver, and you wouldn't have to explain yourself every time you come up with a new time-saver-abbreviation.

Want to Undo and Redo? You don't need to keep tapping backspace to erase the last bit you typed. Shake your iPad and click on the Undo Typing option that

pops up. Shake it again, to see the Redo Typing option.

There are some frequently required punctuation that can be accessed from the first screen of the keyboard, without having to switch back and forth between screens. For example, tap and hold the exclamation mark to use an apostrophe, or the question mark to use the quotation marks. Try pressing and holding other keys for accented letters.



Turn your iPad into a monitor

Watch movies on your iPad by wirelessly connecting it to your PC, Mac, or laptop, without



Fast-scrolling on your iPad

having to convert and move your videos. Although with the VLC app for iPad, you can play all your movies without conversion. But this comes in handy when you want to turn your iPad (iPhone, or iPod) into a remote display for your computer. You can mirror your monitor, or extend it onto the iPad's screen for more room. You just need the right app for this purpose, and we recommend Air Display 2 (<http://dgit.in/airdisp2>). Your computer and iOS device must both be connected to the same WiFi network. With this, you can also control your computer wirelessly from your iPad. Air Display also has a built in keyboard, or you can use a bluetooth keyboard if you like.



Apple headset remote



Remote Control your Computer

Along the lines of remote display, you can also access your computer remotely, while on the go. Access your files, pictures, documents and launch applications all from the touch of your iPad. Again, you'll need an app for this magic to work. We suggest LogMeIn (<http://dgit.in/logemlin>) and Pocket-Cloud Remote Desktop (<http://dgit.in/pcktcltd>). But you're looking at a subscription fee to use them. Use the limited period trials, and see which one suits you best.



Lock screen rotation – click!

You probably use the slider on the right side of your iPad to mute, and lock the screen rotation using the control center. You can switch their functionality depending on which one of these functions you use more often. Go to Settings > General > Use Side Switch To: and tick on “Lock Rotation” or “Mute”, as per your choice.



Buy once, use forever

One good thing about the Apple store is that you need to buy an app only once, and you can download it however many times you want. Sometimes your screen gets too crowded, and you feel like you want to



Restrictions

get rid of some apps that you aren't using anymore. You can get rid of them, uninstall and free memory without worrying about re-purchase. You can download it again later as long as you're using the same iTunes account. You can find all your previously purchased apps in a separate section, so you don't really NEED to buy a 128GB device after all. However, deleting an app also deletes the data associated with it. So keep that in mind before you tap that cross on the wobbling icon.



Don't leave footprints

Analogous to the Incognito Window of the Google Chrome, there's the Private Browsing option in Safari. When you open Safari, just tap on "Private" at the bottom left corner to turn on Private Browsing. The browser will no longer record your browsing history and any form data.

The list does not end here. The more you use, the more you'll learn. Write to us if you have discovered another nifty little trick that we haven't already covered.

FIGHT SPAM

Any advertisement or message in the form of an email, junk mail or telephone that the receiver did not specifically request for, can be defined as spam. And though one harmless email



iPad as a secondary (and tertiary) screen

that most of us just ignore might not seem very problematic, the sheer numbers in which we get these mails makes spam one of the (if not the) most annoying things on the internet. The fact that it hampers the productivity of adults and that the nature of some of them might be objectionable to kids, makes it very important to take key measures to protect yourself against spam. We list here some steps that you can take to keep that annoying spam away:



Don't use primary addresses to sign up

Probably the most intuitive and basic advice – but it holds true. Do NOT sign up for any kind of web forum, magazine or membership with your primary work id. Always maintain separate mail IDs for work and all your other activities. Or, you could...



Use disposable Email IDs

So instead of using your real email address, you could just use disposable email addresses. How do they work? It's pretty simple actually – a disposable mail id will forward all the mails it receives to your real mail address. So whenever you realise that you're getting spam through that particular mail ID, you just disable it and all the

mails are bounced back to the sender instead. Using unique disposable IDs for different websites also reveals which of them are responsible for the spam you receive. Here are some good sites for creating disposable email addresses:

- <https://meltmail.com>
- <http://www.easytrashmail.com>
- <https://ssl.trashmail.net>



Create long, complicated email IDs

Once you post your email address somewhere on the internet, there's a very good chance that you'll end up receiving spam. But, even if you don't there's still a chance of getting spam mail. This is because apart from scavenging them off the net, they also use another method to find email addresses – guessing. Spamware will send mails with the most likely user names at each popular domain, and one of them might just be yours. So to decrease the probability of getting one of these, try and get an email ID that is relatively long, complicated and not very commonplace. Of course, that doesn't mean you'd create something absolutely inconvenient for a friend or a colleague to type out.



Avoid mandatory registration forms

Sometime the internet is just plain annoying. Especially when you really want to visit a particular page, but a compulsory registration is required just to get through. Not only does this waste time, but also creates the added chance of receiving spam mail from that website to your email account. Thankfully, there's an easy way to sidestep this. As long as the website doesn't involve financial transactions, and registration is required only to view the website - <http://www.bugmenot.com>

com is the one stop solution for this. The website gives you already registered user accounts and passwords to the website, allowing you to skip registration and in the process, stay away from spam mail.



Use Unchecky to do away with unwanted programs

When trying to install a program, many a times you'll find that in the course of the installation there'd be a hundred checkboxes that would be prompting installation of another, perhaps unwanted, program. If you do the recommended installation, or forget to uncheck a couple of boxes – there'd be new software on your internet even before you realise it. If you download even some amount of software from the internet, you would have encountered this particular issue. Luckily, a beautiful yet simple program called Unchecky can solve that problem for you. It works by automatically unchecking the boxes that are hard to see, and also warns you if you try to accept a potentially unwanted offer. Best part is that it is easy to install, and it is extremely light. Give it a try: <http://unchecky.com>



Use an Anti-spam program

An anti-spam program or a spam filter reduces the number of junk and spam emails that appear in your inbox, making it easier for you to check email. Many of the better anti-spam



Unchecky – the saviour



Unchecky takes care of bloatware and more

programs though, like 'SPAM-fighter Pro' or 'Cloudmark DesktopOne Pro', are quite expensive. Thus, among the free spam filters out there, we recommend the average user to get his/her hands on 'Mailwasher Free', and though it's last freeware version has limited features compared to its commercial brother, it's still pretty effective. <http://dgit.in/mailwash>



Use Spamcop

Spamcop is a service that determines the origin of unwanted email, and then reports it to the relevant ISPs. Complaining about spam is one of the most effective ways to ensure that you do not get more spam – as once the ISPs are alerted, the spammers are forced to lose their internet access and/or required to pay for breaking the policies of use set by the corresponding ISP. To submit a spam report using Spamcop, you'll need to first open the source of the email in your email program. If you're using gmail, just click on the drop down menu beside the reply arrow on the original message, and click on 'show original'. Select the entire source, copy it and then paste it into the input field in the Spamcop website. Press 'Process Spam' and then click on 'Send Spam Report Now', and you're done reporting the particular spammer. You can also submit spam to Spamcop via email, if the whole

copy pasting each spam mail is too much work. To do this, you'll need to send the spam mail as an attachment to Spamcop, and for that you'll need to save the spam

mail as an EML file on your computer. Just go to the source of the mail (as mentioned above) and copy paste the whole thing into a text file, and save it as a .eml file instead. Once you have a bunch of .eml files that you want to report to spamcop, all you'll need to do is attach them and send them to your personal submission email address. The personal submission address is a unique address for every registered user, and is displayed right below the welcome message on the Spamcop home page.



Disguise your Email Ids

When posting on a community forum where there's a risk of attracting spam, always disguise your email ID by adding/inserting something extremely obvious to it. For example, if your id is jamesbond@martini.com, you could modify it to read something like jamesDELETETHISbond@martini.com so that only the people who really want to mail you can do so by removing the obvious 'DELETETHIS' in the email account. Though it might seem like it's making sending mails harder, this tiny bit of precaution can work wonders in stopping spam.



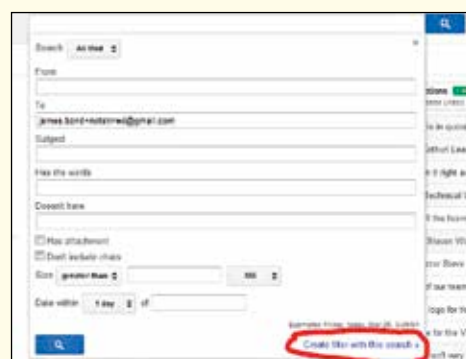
Use your GMail filters wisely



Use filters to fight spam

Gmail has this amazing feature where it lets you use an address alias by just adding the alias to your username with a '+' sign. For example, mails sent to james.bond+notstirred@gmail.com will be delivered to james.bond@gmail.com. Best part is that there are filters that can be setup that allow you to automatically take actions for messages with particular aliases. This means that you can always divulge your email address on a website with your alias ID, and then filter it as you please, making sure that these mails aren't sent to your inbox unless specified.

To create a filter in your Gmail account, all you'll need to do is click on the arrow mark right beside the search bar on your Gmail page, and then add the filters as you want them, and click on 'Create filter with this search', and then decide what to do with the messages that these filters apply to.



That's where your filter creation button is



Use 'India against spam' (Android)


The barrage of unwanted messages that a customer gets on his phone is unbearable. So many legitimate/important messages or calls are ignored because of the number of spam messages that fill the average inbox on a daily basis. Initially, there was this option of a 'DND' message that could be sent, but then it wasn't very effective and the messages did not stop. Now, TRAI (Telecom Regulatory Authority of India) has an option of reporting the unwanted numbers to their

official number. Though it is a good gesture, there is an entire process associated with registering these complaints to 1909. That is where 'India against Spam' comes in. It's an app that makes life extremely easy for android users by registering the complaint with just a click of a button, eventually leading to a cleaner, spam-free inbox.



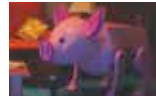
Use Google Voice to screen phone calls for you

There are those times when we're out and we need to write down our number in a form or to register for something, and we're just not sure whether

or not we can trust these guys with our number. In cases like these, just sign up for a free Google Voice account, and everytime you need to give your phone number for something like this, just give your Google voice number. Sure, you can forward your Google voice calls to your phone number, but then knowing that you've only given the Google voice number for calls that aren't personal, these can be forwarded to your voice mail. You can then check the email that Google sends you about the phone call, and make out whether or not the phone call was worth your while. All of this without the hassle of receiving a number of phone calls to make sure you don't miss that one worthy call. 

Blackberry's money

How does Blackberry plan on make its money with BBM? Find out from this enlightening article: <http://dgit.in/bbmunny>

**Pigs Rock!**

If you ever wanted a reason to not eat pigs, here's one: They are awesome! Read on to know why: <http://dgit.in/pigsrock>



How to painlessly migrate to an Android phone from any OS

You don't have to sacrifice your precious data while switching to your new Android phone.

Niranjan Iyengar

readersletters@thinkdigit.com

If you own an Android device then you probably owned something else sometime before. If you owned any other device, chances are your biggest regret is the fact that you couldn't transfer all your data. Well, as they say, 'forewarned is forearmed'. When you're done reading this, you will be so well informed that all the pretty girls will come to you for help. Living the geek dream.

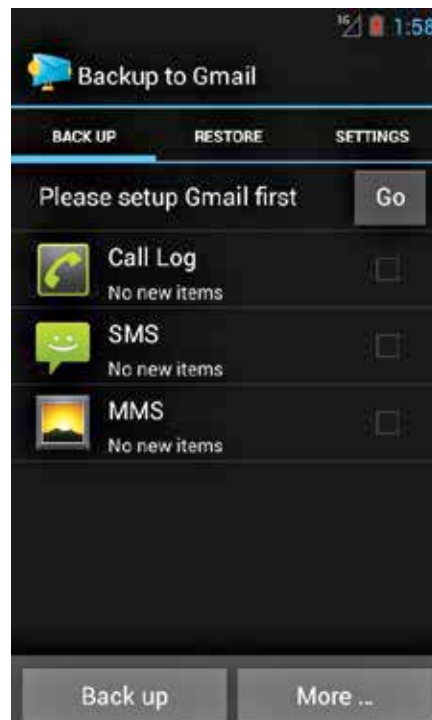
Let's try it out with a few mainstream OS-es. If your previous device was a smartphone it's highly likely that it was one among iOS, Blackberry, Android and Windows Phone. So let's start with them in alphabetical order and begin with

Android

If you're moving from one Android phone to another then you have your work cut out for you, because moving contacts on the Android OS is as easy as typing in your GMail ID. Since your contacts are saved to your GMail address book, your contacts are synced as soon as you sign in to your device when you upgrade.

The more difficult things to transfer are your apps, your data and your SMSes.

This is where the Android app **Backup Message & Call to Email/ Backup to GMail** comes in handy. Obviousness in the name aside, this is a free app, which, instead of backing up data on its servers or on a memory card, sends all the data to your GMail ID.



Android to Android, as easy as pie

Once installed, you will be required to set up your GMail account and grant the app permission to view and manage your mail which includes deleting, composing and sending mail too. Once set up, the interface is three tabs in all- backup, restore and settings.

The only sad thing here is the fact that only SMSes, calls and MMSes can be backed up and your photos, documents and videos are left out in the cold.

Here is where **My Backup** comes into play – the light version of the lauded **My Backup Pro** which costs ₹321.17 on the app store, My Backup offers all the features the Pro version does minus Wi-Fi Migrate. If you choose not to use their servers which makes restoring your data easier, all your data can be backed up to your device and transferred either by swapping memory cards, transfer via your personal cloud storage account or with a PC.

Blackberry

If you are a Blackberry user, face the truth: the only reason you've held on to your phone from 2010 was because of BBM. Now that it's on everything else, it's logical to move on to an Android device. To make that transition from your BB to your new Android device, you need to back up your BB. Migrating from Blackberry to



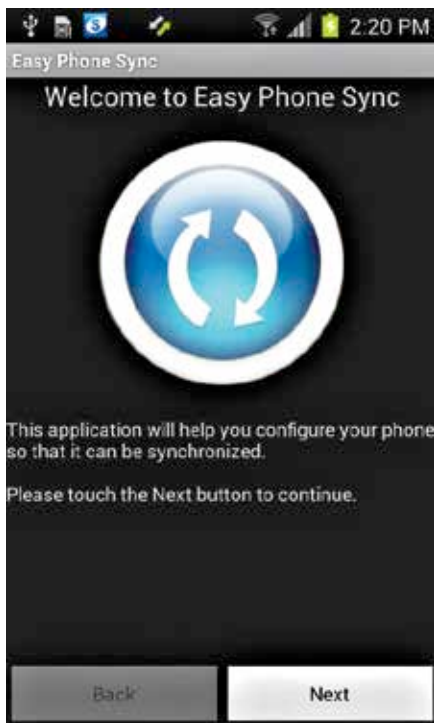
Epic battle

Where do Android and Apple really stand compared to each other in the phone market? Find out: <http://dgit.in/anvsios>



Sony smartwatch?

Sony decides to create its own Android-based Smartwatch. Read on to know more: <http://dgit.in/ssmartw>



Or is this as easy?

Android is slightly more cumbersome because there is no GMail support any more so your contacts will not come back home like Lassie.

To get the job done in the easy way, you will need to create a backup file for your Blackberry. Either use the **Blackberry PC suite** (available at in.blackberry.com/support) or use apps like **Data Backup from Blackberry World** and backup your data. Transfer the backup file on to your Android device either via PC, cloud or a memory card. Once transferred, use **2Can**, a paid app that can restore all your data from SMSes, to contacts, notes and tasks. You can also view, edit and search for your notes and contacts using this app.

The next best alternative is **Easy Phone Sync** – A software that works with the backup files created on the Blackberry PC suite. Contacts, messages, photos and videos can be transferred by installing and opening the Easy Phone Sync app on your Android phone and connecting it to the Easy Phone Sync for Blackberry programme on your computer. You can browse for your backup file on your PC using the software and transfer it along with your SMSes and contacts and restore them to your phone.

iOS

If your old phone was made by Apple inc., then transferring contacts is going to be a breeze. Just download the **GMail** app for iOS and sync your contacts. With a little bit of time, all your contacts will be synced with your Android. Just remember to turn the Wi-Fi on on your iPhone if you're still not using it.

Photos and videos too can be very easily transferred. Just connect both devices to a PC via USB and access them through your computer. Copy the images and videos from your iPhone and paste them in to your Android phone's phone memory or in to the memory card.

SMSes and iMessages on the other hand need the power of applications and **iTunes**. The first step is to back up your iPhone using iTunes. Once complete, copy the back-up file from your PC to your Android device. Download and install **SMS Backup and Restore** on your Android. Launch the app and tap Restore to restore all your messages.

'What about my iCloud account?' you might ask, well, as of now iCloud is still off bounds on Android browsers but the find my iPhone feature is still available using the **Find My iPhone** free- icloud app on your Android phone.

You can find any of your apple devices by simply signing in to your iCloud account using the app and track your device's location. You can sign in to three different accounts and track the whereabouts of your teenage kids too and see if they are up to anything questionable.

Symbian

In case you owned an old Nokia phone running the Symbian OS, your work is cut out for you for one simple reason. Known simply as **Mobile Transfer**, this PC software is available at <http://dgit.in/mobtransf>.

This nifty and powerful little software has the power to transfer everything from contacts, call logs, messages and other miscellaneous data from just about any phone to any other phone. Since it is one of the few that supports and claims compatibility with over 2000 different models, in a way, it could justify the fact that the full version costs about \$40 (~₹2,419.) If you'd rather not pay the exorbitant

amounts some developers charge, you can still do it with the **Nokia OVI Suite** and out old friend **SMS Backup and Restore**. To restore your SMSes, just download the latest version on Nokia OVI Suite and sync your messages after connecting your phone to your computer. Once backed up, disconnect your phone and close the OVI Suite. It minimises to your system tray so exit it from there as well.

The next step is to convert the back up in to an xml file. Download and install **Nokia2AndroidSMS**. Once it runs, it should automatically find the SMS back-up file. Hit convert and you have only two steps to go.

Transfer the xml file to your Android device and run the **SMS Backup and Restore** app and hit the restore button.

Transferring contacts on the other hand is much simpler and only requires an app available on the Google Play Store. Download ccdr's **Rainbow Contacts**. This app can transfer contacts from virtually any device to your Android phone through Bluetooth.

Install the app on your Android device and turn Bluetooth on on the other phone. When you tap on the 'Easy Fetch Contacts' button, the phone asks you to keep the



As many devices as colours in a rainbow

Is your security tight?

Find out and take some pointers about good security and how to improve it. Check out this article: <http://dgit.in/secwa>



Whodunnet?

It has been well-proven that the internet loves solving mysteries. Here is a list of 7 mysteries the internet loved: <http://dgit.in/whodunnet>

Workshop

other device ready. Hit the OK button when it is and select the device that contains your contacts that need to be imported. Your contacts are imported automatically.

Windows Phone

With no official GMail app for Windows Phone, transferring contacts just took a nose dive when it comes to ease of use. But, assuming you have an account on Outlook, Hotmail or Windows Live, things get easier with a PC at hand.

The first step is to export your contacts from the Microsoft account linked to your phone. If the contacts are fully synced, they should appear in the 'People' section of the drop down menu next to the 'Outlook' button on the top left once you have signed in from your PC.

Under 'People', hit 'Manage' and select 'Export' in the drop down menu. You will be asked if you would like to save the file "WLMContacts.csv". Save it and half the work is done.



Two apps to move them all

Next, sign in to your Google account, the one that's linked to your phone and click on 'Contacts'. Look for the 'Manage' button here and select 'Import' from the drop-down menu. A dialogue box will appear where you can choose the file you would like to import. Search for the file you saved from your Microsoft account and hit 'Import'.

If you sync your GMail account, your contacts should be restored. You could also install the **Outlook.com** app and sync your contacts to your Android phone automatically.

If you had enabled and auto backup of all your images and videos to **Onedrive**

(previously known as Skydrive), they can all be brought back to your Android phone by installing the Onedrive app.

To bring your messages back, well, it's still not possible as of now. While there are people who claim that it is possible, no real easy to use methods have emerged. Although for some reason, restoring backed up SMSes is possible if you're moving around within the platform.

What do you do once you've successfully managed to migrate? You could either do a factory reset and get rid of all your data, a safe thing to whether your selling the device or not or just leave the poor thing at the bottom of your desk drawer until something happens to your Android device and you desperately need a backup phone.

Then again, you could do the responsible thing (if you're not selling) and try recycling it at atterobay.com or envirocom.in. Whatever you choose to do, we wish you the best of luck. 🍀

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Disney meets its Maker

...and decides to buy it. The company spent 500 Million dollars on Maker Studios. To find out why and to know more, read: <http://dgit.in/Dis5mil>

**Spotify targets students**

Spotify decides to give college students fifty per cent off on premium subscriptions: <http://dgit.in/spotstudent>

5 Apps *to fix the* Nexus 5

No phone is perfect. But it can be. We show you how.

Prasad Naik

readersletters@thinkdigit.com

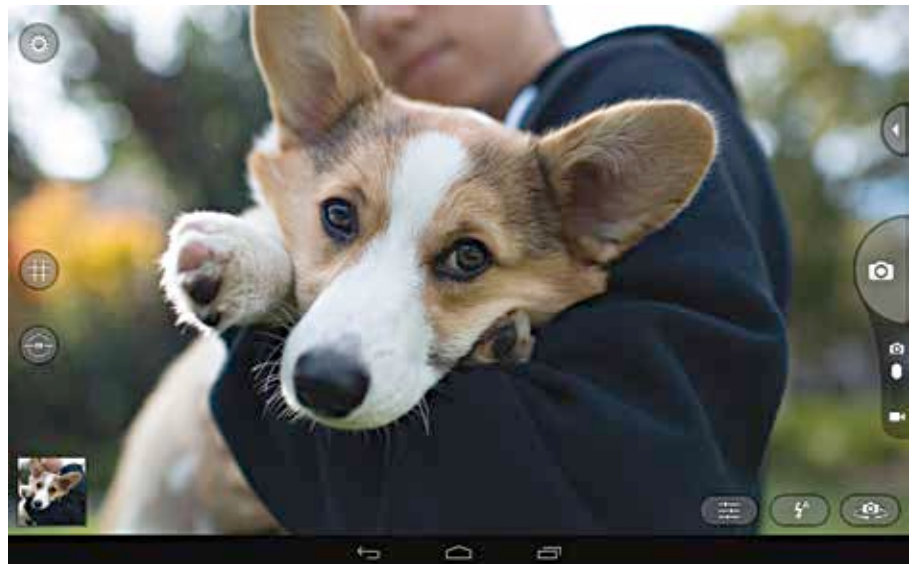
The Nexus 5 is one of the best smartphones available on the market today. It looks great, has a fantastic, high resolution display, top notch hardware, the latest version of Android with the promise of quick updates as soon as Google announces them and solid overall performance, all at a relatively wallet-friendly price. It's an extremely sensible product that you just can't go wrong with it.

But as is the case with everything, it's not perfect. There are some gripes we have on both the hardware and software side and while there is little we can do to change the hardware, thankfully, we can improve the software experience with the help of a few simple applications. So let us take a look at five apps that help fix the Nexus 5.

1 Camera Awesome

The Nexus 5 camera has received a lot of flak since its launch. Contrary to popular belief, though, the actual camera hardware is not all that bad and you can get some pretty amazing results with it. Unfortunately, what lets the camera down in most cases is the camera application that Google bundles with the phone – it just isn't as good.

This is where Camera Awesome comes in. Camera Awesome comes with a ton of settings and features that lets you adjust



and play around with a whole bunch of things before you take your shot. The range of customisation options available here is far superior to what you get on the stock camera app, allowing you to have a much better control over the final image. And unlike some of the other third party camera applications out there, Camera Awesome also has a good UI design, which makes accessing all those features easier.

An alternative to this app is VSCO Cam. While it actually has fewer features than even the stock camera app, it makes up by having a ton of image editing features, including some gorgeous, professionally tuned filters for your photos that will lend a touch of class you can't get with other apps.

2 Light Flow

While the Nexus 5 does come with a multicolor LED for notifications, by default the OS makes rather poor use of it. It is awfully slow while blinking in some apps and it won't even bother glowing to show battery status while charging or discharging.

Light Flow allows you to customize the behavior of the LED on your phone. You can choose when and how the light blinks for various events and applications. You even get control over the color of light that should glow for a particular event or app, so at a glance you know exactly what your phone is indicating you about.

Light Flow is a premium app but there is a free version that you can try out.



Fleksy keyboard

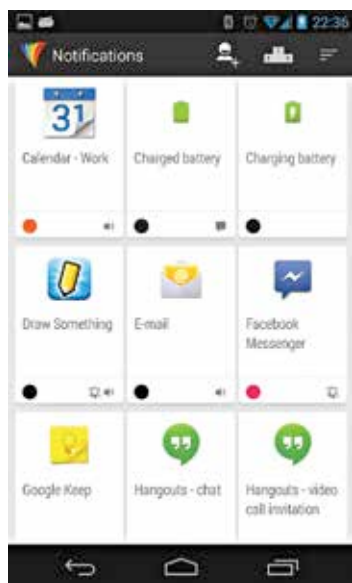
The popular Fleksy keyboard app for Android now features cloud syncing and achievement badges <http://dgit.in/FleksySeksy>



e-smoking: does it work?

According to a recent study by researchers at the University of California, not at all. Here's why: <http://dgit.in/Esiggy>

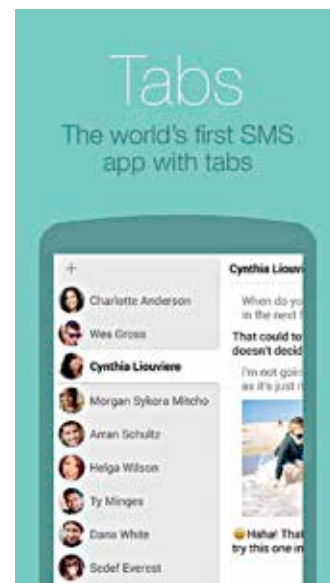
Workshop



ES File Explorer

The support for a full-fledged file explorer, such as the ones you get on a desktop operating system, is one of the best features of Android. This is why it's so baffling when you find out that Google does not actually include one in stock Android, making it only slightly more functional out of the box than iOS or Windows Phone.

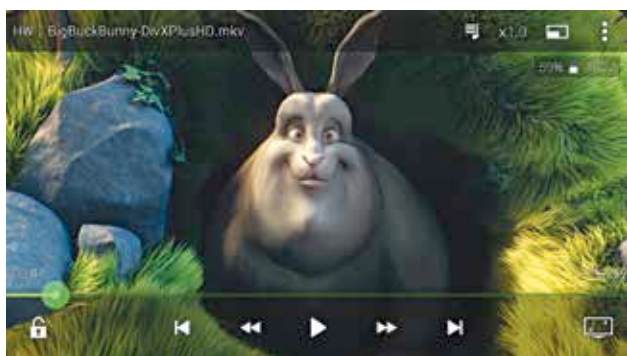
Thankfully, there is absolutely no shortage of file managers on the Play Stores for you to try. One that particularly stands out is ES Explorer with its laundry list of features. Other than basic file management tasks you can also open and compress ZIP and RAR files, manage other apps on your phone, remotely access



Dice Player

Google has traditionally left stock Android bereft of a proper video player. While most other OEMs have one, including support for a wide range of codecs and containers, on Nexus devices you are relegated to playing only MP4 videos in the default Gallery app.

Dice Player takes care of that problem completely. It's a fully functioning video player, with features like hardware acceleration and subtitle support. It also supports a wide range of video formats so you can practically throw anything at it and it will work. The interface is also better designed than some of the other players out there, such as MX Player, it's more reliable and has less intrusive ads despite being a free software. It's really is a must-have if you plan to watch a lot of videos on your phone.



the files on your phone, edit text files, access FTP servers, use it as a client for Dropbox, Box.net, etc. and much, much more. It is more than you'll ever need and despite that the app is still free.

Only area where ES Explorer leaves a bit to be desired is in the UI department. If you're someone who prefers form over function and don't mind sacrificing some of the features for a better UI design, then you can consider downloading inKa File Manager.



Hello

With the introduction of Android 4.4, Google merged the SMS functionality with the Hangouts application, which was previously just an IM and video call service. Unfortunately, this was a very bad idea. While the app is designed to merge SMS and IM from the same contacts under one name, we all know no one really uses SMS anymore for messaging their family or friends. The only people who still send SMS are the kind who want your money for services you don't need.

This means that all your junk SMS, or basically all your SMS get dumped together in the same application as your Hangouts chats, which just makes the experience of using Hangouts worse. Thankfully, Google has not made it compulsory to use Hangouts as your SMS app and you can actually download third party SMS apps to use instead. This means all your SMS go into a separate app leaving your Hangouts alone.

Now you could use pretty much any app for this purpose but we chose to highlight Hello, here. This is one of the best looking SMS apps out there, with simple and attractive UI. It's a perfectly good substitute for the old messaging app on Android and actually way better looking. And it has some great features too, such as a message preview that appears on top of your screen and quickly dismisses itself, and the ability to reply, mark as read or delete an SMS from the notifications screen, as soon as it arrives. All for a sum of \$0.00.



Why the Big Bang?

Learn the reason behind why the Universe blew up 13.8 billion years ago
<http://digit.in/UniBlow>



Portal gets 'droided

Portal decides to make an exclusive appearance on the NVIDIA Shield as an Android game <http://digit.in/portand>

Slow USB transfer speeds, overclocking issues, multi-monitor fails. And more...

We'll solve them all, It's Team Digit to the rescue

Q A shocking case!

My computer is working fine but the PC cabinet is having a problem. Whenever I touch the PC case barefooted, I get an electric shock. I used an electric tester to touch the case and saw that current was flowing through every metal part of the case. Will this damage the components in my PC in any way? If yes then what should I do? Please suggest a solution for this? Keep up the good work.

-Chinmoy

A In most cases, computer cabinets shock users when there is no electrical grounding or grounding is insufficient in the wall sockets to which the computer is connected to. Sometimes it is also due to a faulty or cheap Power Supply Unit (PSU). Stray current is never good for components and it sure can damage them. To get rid of this, your only solution is to first call in an electrician and tell him to check the electrical grounding in your home and fix it if it's improper. You should now be able to touch your PC case without getting a shock but if the problem still persists, get your computer's PSU also checked, it can also be the culprit.

Q Slow USB transfer

I recently built a new PC and installed Windows 7 on it. Everything works absolutely fine on the system but whenever I transfer data on storage devices over USB, the transfer speed is very slow. I tried to figure out a way of fixing this by going to the Control Panel but I found nothing helpful. Please help me resolve this issue.

-Nirav Gadre

A Windows 7 has a few known USB performance issues when it comes to

using USB storage devices. But rest easy as Microsoft took care of that with Windows Updates. So the first thing that you should do here is to run Windows Update and fully update your OS. Next, you should also install the latest drivers for your motherboard. Don't leave anything out especially the drivers for discrete USB controllers if any. Once you're done with that, you should also try setting your USB drives to performance mode. To do this, right-click on computer > Click "Manage" > Select "Device Manager" from the list of options > right-click on the USB drive >

Q Overclocking help

I recently upgraded my CPU to an AMD Phenom II 1100T from an AMD Phenom II 965 BE. I'm having a few problems trying to overclock the CPU in the BIOS of my motherboard which is: MSI 890FX A-GD70. Also, I need to know how can I change the various voltages if the only setting in BIOS is Auto? Finally, I just want to overclock the CPU, not the RAM. Which voltages should I tweak in the BIOS? Should the voltage change be higher or lower?

-Mukul Anand



Better performance

Select "Properties" from the menu. A window will pop-up once you do that. Click on "Policies" tab > Select the option button labelled "Better Performance". This should improve the USB transfer speed. But do remember that enabling the "Better Performance" feature will also enable write caching, so you'll have to always use the "Safely Remove Hardware" option when disconnecting the USB storage drive to prevent data loss issues.

A Overclocking a PC though sounds very exciting, it's something you should think twice before doing as you're always in the risk of damaging the components of your PC if something goes wrong. Since you're using a MSI 890FX A-GD70, changing the voltages is fairly simple. Start up your PC > go the BIOS > Go to "VDD field" which should be set to "Auto" by default. Now you can use the plus or minus buttons of your keyboard to



MS-DOS Source code

Microsoft releases the source code for MS-DOS 1.1, 2.0 and Word 1.1
<http://dgit.in/DosSource>



NVIDIA NextGen

NVIDIA announces the launch of the next generation of GPUs. Read more and find out:
<http://dgit.in/nvdxng>

Q&A

increase or decrease the voltage. Please note that you should be running the latest version of your motherboard's BIOS which is a must. Now, as you only want to overclock your CPU and not the RAM, increase the setting for either the "Adjust CPU FSB Frequency" or the "Adjust CPU Ratio." Tweaking the CPU FSB should increase the DRAM clocks, while tweaking the CPU Ratio should leave the RAM out of the process. If you want to keep your RAM within a particular desired limit according to the CPU while doing an FSB overclock, you can simply change the "FSB/DRAM Ratio" until the frequency is at the required clock. If for some reason you decide that you want to set it back to auto, simply go to that field and type "auto" or select it. Generally while overclocking, adding voltage and not lowering voltage, is the key to achieving higher overclocks. But tread cautiously as the margin of error and risks increases as you keep on adding voltage. So don't add tons of voltage at one go without knowing what you're doing.

Virtual Machine sharing

Lately I've been doing a lot of tinkering on Virtual Machines. I recently set up Windows 8 on a virtual machine so that I can run it while Windows 7 runs on my other monitor. I wanted to know whether there is any way for the virtual machine that has Windows 8 running on it to access the files utilized by my Windows 7 installation? I want to do this as it would save a lot of my time from having to download files again and would allow access to documents, photos, etc. Thanks in advance for your help.

-Bharat Shah

Since you haven't mentioned which Virtual Machine software you're using, we're assuming that you're using VirtualBox as we've recommended it to our readers quite a few

times. To do what you asked for, go to the "Devices" menu in the Virtual Machine while Windows 8 is running and select "Install Guest Additions". Once the



VirtualBox

installation is complete and you have restarted or rebooted the virtual machine, go back to "Devices" and select "Shared Folders" > Add shared folder. From there, choose where you want your shared folder to appear on your Windows 7 (main) OS. If for example you want it on the desktop then create the folder required on the desktop. If you want it to be a permanent change and make it appear always, be sure you select the options for "auto-mount" and "make permanent". Any file you copy into the created folder on your main OS (which is

Windows 7) should now appear in the folder on the OS in your Virtual Machine by clicking the "Windows Explorer" icon seen on the desktop.

Multi-monitor woes

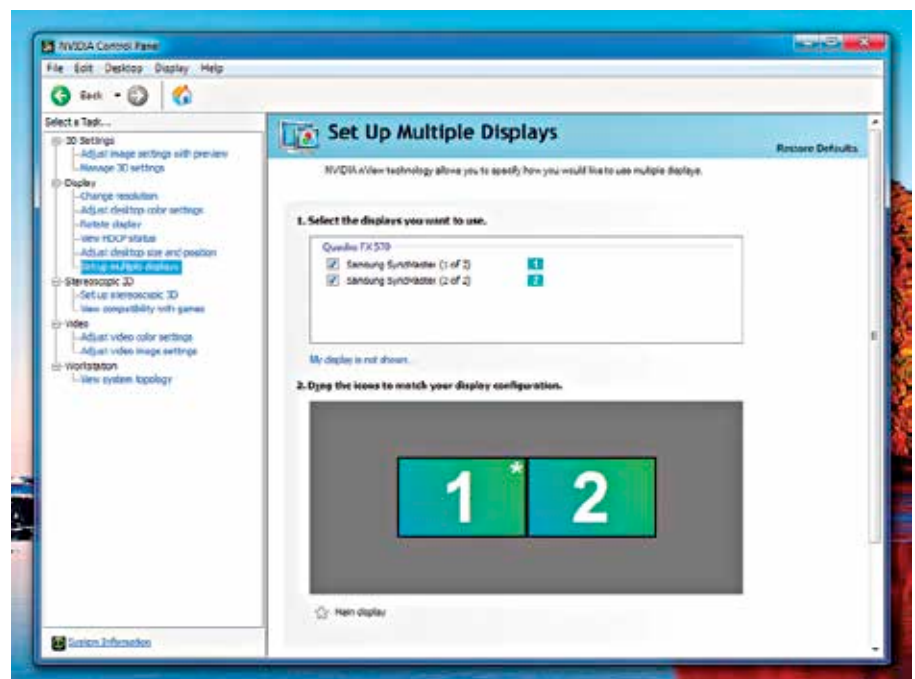
I have a decent PC and I recently bought a new monitor for use as a second display for a multi-monitor

setup. My problem is that whenever I connect the second monitor, the display isn't recognised. I've checked both the monitors by connecting them individually to the PC

and they work well. It's only when I connect two at a time that I run into trouble. What would be the reason for this? Please advise.

-Avinash Mulay

This can often happen when you set out to configure a multi-monitor setup. Usually, systems that are running the default Windows drivers have known issues with this. So to set it up, firstly you'll have to make sure that you're running the latest graphics drivers. Go to your graphics card manufacturer's website to download and install the latest drivers. Once you're done updating the drivers, head over to the control panel of the graphics drivers to enable the second display. You will usually find the menu for enabling the second monitor under the "Set up multiple displays" tab in most graphics driver control panels. Next, if you are using a VGA-to-DVI adapter, sometimes DVI ports don't tend to work. So if there are two ports on your graphics card, then you should try them both to check which one works for you. Lastly, press [Win]+[P] button combination to select from among extend, duplicate and other screen options for use. After you've performed all the above checks, you should be able to see both the monitors work.



NVIDIA control panel for tweaking multiple displays

25 years of spinning the web!



Jayesh Shinde
Manager - Test Centre
jayesh.shinde@thinkdigit.com

"But is the web dealing with a quarter life crisis? We would be naive to think that everything on the web was hunky dory."

To this day, I remember the exact moment of my first encounter with the World Wide Web. It was at a friend's place – who much to my envy had managed to cajole his father into getting him a PC with "dial-up internet" connection slightly before I could successfully sucker my own father into it. And although out of my pre-adolescent pride I vowed never to see my friend's face ever again, my curiosity got the better of me. I was amazed with the whole dial-up connection process and the popping up of IE to display Yahoo's homepage, signalling the successful link to the internet. It remains one of my most cherished memories, rivalled only by my other first encounter with a true tech marvel – a 3D printer. Even all those years ago, the internet – and the world wide web in it – didn't reveal the scale of its impact it'd have on my life.


Of course, the web has transformed into an entity beyond anyone's wildest imaginations – surpassing even Arthur C. Clarke's prediction of all-pervasive, internet-connected personal computers. It has disrupted markets, created new ones, brought the world and the human race closer than ever before in any time in history. People don't read newspapers anymore but websites and web feeds; from browsing websites on PCs to apps on smartphones and tablets; from shopping at brick and mortar stores to clicking a button and ordering goods/services online. The web has changed us. From Yahoo and Google to social networks like Facebook and Twitter, we have fundamentally altered the way we find information and communicate with others of our species.

On the heels of companies that expanded the scope of the web, came companies that added software and services on the web's infrastructure, and now we are entering a phase of the web (and the internet) that's increasingly making it all-pervasive and invisible. The number of people I encounter who've never heard a phone's dial tone, or don't remember a pre-internet world (because they weren't born in it), is steadily increasing. Digital natives for whom the web is the same as air and water. All of this in a quarter of a century. Wow, would be an understatement, don't you think?

But is the web dealing with a quarter life crisis? We would be naive to think that everything on the web was hunky dory.

Spam continues to wreak havoc on the web's infrastructure, despite Bill Gates' infamous 2004 prediction that "spam will be gone in two years." Similarly, after Edward Snowden's NSA leaks, Columbia Journalism Review's 1995 prediction of "the web means the end of Big Brother" couldn't be light years away from reality as we know it today. The web's scope and magnitude is so huge that countries and companies have now started to put up fences to regulate access to it. The web's "wild wild west" days are all but over, as it's set to become more mature. Let's hope that in the process it doesn't fully extinguish the spark that ignited it in the first place, and the founding principles governing its birth.

But let's not be overcautious and get carried away with cynicism. The web's story is still unfolding in front of our eyes, and from where I can see it's full of limitless possibilities.

All of us born before the mid '90s have seen the web evolve and expand in front of our eyes, and we've evolved along with it. Countless pen strokes and keystrokes have chronicled Tim Berners-Lee's idea of a hypertext web and how it came to be, so I won't repeat the same here. It's time to just sit back and tip your hat to the web, and where it's taken thus far. And the exciting journey all of us still have to embark upon in the web's unknown yet exciting future. 

Bazaar

THE LATEST PRODUCTS REVIEWED FOR YOU

The Digit Test Centre receives hundreds of products every month. Each of these products is put through a series of tests and is finally given a score. The final score is arrived at after considering a number of factors and evaluating them in terms of features, performance, value for money, build quality, and, in the case of software, even ease of use.

For better understanding of our ratings, here's a quick guide to our overall score

-  **Extremely poor product.**
Keep away!
-  **Strictly OK.**
Not recommended
-  **Decent product.**
Go for it, but there may be better products out there.
-  **Very good product.**
Highly recommended.
-  **Ground-breaking product.**
We've never seen anything like it before.
A definite must buy!

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Sony VAIO
Flip 13



◀ Page 72
Harman/Kardon
Go + Play
Wireless



Page 73 ▲
Acer Travelmate
P645



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Minix Neo X7



▲ Page 74
ASRock H81 Pro
BTC



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UC

PLUS

- 70 | Gigabyte H81M-DS2
- 70 | MSI A88X-G45 Gaming Assassin's Creed Edition
- 70 | Nexstar HDD Dock NSTD306WS3
- 72 | ASUS Rampage IV Extreme Black Edition
- 75 | Steelseries 6G V2



Corsair's new budget cases

Corsair pulled the covers off three new computer cases from the Carbide Series SPEC range. Each of the three cases - SPEC-01, 02, 03 will be available for cheap. <http://dgit.in/CarbideSPEC>

Cam up

Here are some interesting and rudimentary ways to use your phone camera more productively <http://dgit.in/ONTzn5>

Plantronics Voyager Legend CS Bluetooth Headset

Must have, if you keep juggling between the smartphone and the landline

The Voyager Legend has the signature Plantronics design, with the boom microphone arm design reminding us of the Plantronics Discovery 975 headset. Despite being plastic, the headset feels very premium and well built.

To hook up the wireline deskphone to it, there is the interface cable that connects your phone to the dock and the HL-10 handset lifter accessory. This lets you answer calls on that particular phone as well with the headset.

The latest update of the Voyager Legend gets three microphones, instead of two microphones earlier. This has made a remarkable difference in the audio quality, in noisy areas. The idea behind this



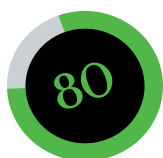
Price
₹12,000

update is to improve noise cancellation, but while the caller at the other end of the line was able to hear me clearly through the general disorder on our streets, they also were able to hear ambience. However, with the improved audio, the call quality for both parties is significantly improved.

Plantronics claims 7 hours of talktime on a single charge of the Voyager Legend, and 11 days of stand-by time. We used it for a couple of hours of calls for each of the three days, and remained switched on and ready 8 hours a day, and the battery recharge prompt still hasn't graced us! This is surprisingly good.

Plantronics has positioned the Voyager Legend CS more at the office user, than someone who needs a Bluetooth headset for the smartphone. And quite frankly, it'll be an overkill for anything lesser. Worth every penny.

Vishal Mathur



Features90
Performance.....90
Build80
Value60

Specifications

Compatibility: Desk phone and mobile phone/tablet; **Connectivity:** Bluetooth; v3.0 + EDR; **Headset weight:** 18 grams

Contact

Plantronics India Pvt Ltd
Phone: +91 124 4105192 / 93
Website: www.plantronics.com/in

MSI A88X-G45 Gaming Assassin's Creed Edition

A gaming goodie basket



Price
₹10,350
(+ Tax)

MSI's latest entrant in its gaming series of motherboards caters to AMD processors. With an A88X chip at its heart, this board supports AMD's Kaveri APU. Build quality is up to mark as well, the CPU socket is reinforced with a metal plate on the underside and the CPU socket can accommodate high-end coolers with ease. A Killer E2205 NIC ensures reduction of lag at the user end and an ALC1150 is as good as most low-end sound cards, if not better. Also there's a free game inside. Overall, thumbs up.



Features58
Build75

Specifications

Chipset: AMD A88X; **Memory support:** 4x2400(OC)MHz upto 32GB; **LAN:** Killer E2205 Gigabit Ethernet; **Audio:** ALC1150 7.1; **SATA:** 8x SATA III; **Expansion:** PCIe x16, 2x PCIe X16(x8+x4); **Dimensions (LxWxD):** 305 mm x 244 mm; **Warranty:** 3 years

Contact

Acro Engineering Company
Phone: 11-40525645
Email: saini@smcinternational.in
Website: <http://www.smcinternational.in/>

Nexstar HDD Dock NSTD306WS3

Finicky app implementation



Price
₹4,687

While the device performs as expected when connected via USB 3.0 its Wi-Fi performance isn't stellar. Firstly, there is no external antenna which limits the drive's range. On top of that you can only have Wi-Fi or USB 3.0 at any given time. The app does allow you to fiddle with the configuration but it would have been better had they provided the ability to use an external player with the app since there are very few formats that the app supports. The device has a minimalist design. However, the device more than provides for your money's worth.



Features64
Build60

Specifications

Device Support: SATA I/II/III; **Form factor:** 2.5-inch & 3.5-inch; **Interface:** USB 3.0; **File System:** NTFS, FAT32; **System OS Support:** Windows XP, Vista, 7 & 8, Mac OS X 10.6+; **Linux;** **Mobile OS Support:** iOS 4.0+ Android Phone 2.1+, Tablets 3.0+; **Wi-Fi:** 802.11n; **Dimensions:** 136 x 83 x 87 mm; **Warranty:** 1 year

Contact

Prime ABGB
Phone: 22-6740 2000
Email: sales@primeabgb.com
Website: <http://www.primeabgb.com/>



Moto X launched in India

After its successful stint with the Moto G, Flipkart launched the Moto X in India available for ₹23,999 <http://dgit.in/MotoXIndia>



Transparent speakers?

Clearview Clio are the world's first and only transparent wireless speakers featuring a single curved glass pane with a minimalistic design. <http://dgit.in/TranSpeak>

Bazaar

Sony VAIO Flip 13

Interesting hybrid, let down by poor build & expensive price

The Flip 13 carries a lot of the design elements from some of the recent VAIO notebook refreshes. The lid and the palmrest area get the brushed aluminum finish, and the single colour tone across the entire construction. However, the hybrid mechanism does make the lid thicker than what it ideally could have been.

Despite the use of materials that look good, there is quite a bit of flex at multiple points on the chassis, like the palmrest area, the lid and the base. The palmrest area dips in and creaks relatively easily even though your palms may just be resting there as you type. The materials look good and they don't feel bad at all, but the final build quality is definitely inadequate for this price tag.

With a name like Flip, one must assume by default that this is Sony's answer to Lenovo's largely successful line of Yoga notebooks. While the Yoga machines would twist and turn over backwards, the VAIO Flip actually does all the hybrid stuff, with the lid. Very smartly, the lid is divided into two, right down the middle. One half remains as it is, while the other has a hinge which allows you to push the display away from the lid by pressing at the back.

In the tablet "mode", the Flip 13 is fairly usable. But, at 1.3kg, it is primarily designed to be used as a laptop, with the additional flexibility of the tablet mode that you may use from time to time.

The 13.3-inch display is 1080p, and is among the crispest laptop screens in this size. The glass coating does make this somewhat glossy, but what you do get is adequate compensation with very good native brightness levels, vivid colours and very comfortable text readability. The IPS panel has advantages with colour accuracy and viewing angles.

The Flip 13's keyboard is similar to the island style keyboard seen on the other VAIO notebooks. The key size is adequate, but personally, I find the spacing a tad too much, so much so that the fingers have to search for the next key. Travel and response is also on the softer side, clearly an indication of how Sony have put this keyboard in without wanting to compromise on the predefined slimness of the machine. A large touch pad is a welcome addition though, and works well for multi-finger gestures, particularly makes scrolling a lot easier.

The unit has an Intel Core i5-4200U processor clocking at 1.6GHz, 4GB of RAM and a 128GB solid

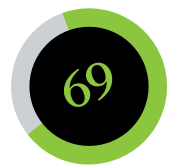


state drive. This is the same processor that we have seen on many ultrabooks and laptops in the last few months, including Sony's own ultrabook. The benchmark scores don't scorch any charts, but the performance is consistent and smooth. The SSD is what makes a world of difference in terms of its performance. Thanks to its SSD, Windows boots up in around 5 seconds, and apps open and close quickly. You will hardly notice any system load even during heavy multitasking.

The battery life is something that is fairly impressive. In the stressing battery test, the VAIO Flip 13 clocked 226 minutes. While this is some distance away from the best battery life scores on laptops and ultrabooks, this 3.5 hours approx in the test will actually result in around minimum 5 hours of backup, in most usage scenarios.

Sony seems to have taken the idea of a Windows convertible to heart. The latest from them is the VAIO Flip 13, following on from the VAIO Duo. But, things aren't what they seem. In the traditional laptop mode, this is pretty much the ultrabook you would have wanted. But, the twisty and bendy bits aren't impressive, and the slide this out and twist this here process is something that you will have to remember - it doesn't come naturally. Unless you want an ultrabook that can do all the Matrix style show off, you would be better off spending this much money on a more conventional laptop or ultrabook. Alternatively, if the tablet mode is something that you really want as an additional capability for your laptop, then the Asus Taichi is an option, that does the same thing in a much neater way.

Vishal Mathur



Features.....	80
Performance.....	80
Build.....	60
Value.....	55

Specifications

Processor: Intel Core i5-4200U @ 1.6GHz; **RAM:** 4GB; **Storage:** 128GB SSD; **Display:** 13.3-inch IPS (1920 x 1080-pixel); **Graphics:** Intel HD; **OS:** Windows 8.1 (64-bit)

Contact

Sony India Pvt Ltd
Phone: 1800-103-7799
Website: www.sony.co.in



Game your throne

Here is some interesting merchandise for all the Game of Thrones fans out there. Summer is coming <http://dgit.in/ORirpd>



ASUS Chromebox

ASUS Chromebox, the chrome OS-powered mini PC is now available for pre-order online for \$179. <http://dgit.in/AChromebox>

Harman/Kardon Go + Play Wireless speaker

A slightly pricey, but very impressive Bluetooth speaker

It seems as a mix of a stream iron, an alien's helmet, a ghetto blaster from the 80's and a woman's handbag! Harman/Kardon has clearly not compromised on the quality of materials used. The top now has the on/off/source-select button and volume controls on the non-slip rubber surface. The standout element, the aluminum handlebar, runs from edge to edge, also ending up creating two of the four rubber-capped metal feet.

On paper, the Go + Play Wireless is slightly down on power as compared to the previous dock version.

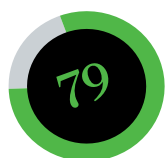


Price
₹24,990

While the predecessor had combined 120 watts of power, the Go + Play Wireless is limited to 90 watts - 2 x 15W Ridge tweeters and 2 x 30W Atlas woofers. But, this all seems to be relevant only on the specification sheet, because the performance of the Wireless is extremely impressive. One thing that stands out is the ease with which the Go + Play Wireless handles vocals and bass, without disappointing the fans of either. The one niggle with the Go + Play Wireless is the mid-range isn't very detailed. This speaker is great for uptempo music - trance, remixes and rock music, but you cannot really expect this to shine with the classics. What continues to impress is the power this speaker packs in. This thing can go really loud, and is enough to drive a house party.

The Go + Play Wireless speaker packs in considerable amount of power for its size. Buy this, if you want one speaker that is equally comfortable in a small room as well as a party at home.

Visbal Mathur



Features	75
Performance.....	85
Build	80
Value	75

Specifications

Drivers: 2 x 15W Ridge tweeters and 2 x 30W Atlas woofers; **Connectivity:** Bluetooth; **Compatibility:** iOS, Android, Windows, Mac; **USB:** Yes, for charging only; **Battery:** D-cell

Contact

Harman India Pvt. Ltd.
Phone: 1800 108 1234
Website: www.harman.in

ASUS Rampage IV Extreme Black Edition

Decked to the hilt, this board has almost everything you'll need

There are very few reasons for which anyone would invest in the X79 platform and when you do so you'd want to juice it for all its worth. The ASUS Rampage IV Extreme Black Edition motherboard is one such board. Surprisingly, it's not the most expensive X79 motherboard. As for features, we've noticed that this board doesn't come with a FireWire or COM port. Then again these are some niche connectors that very few find any use for. This board is made for overclocking, everything from the CPU socket to the fact that they've included an external module catered towards making the work of an overclocker a lot less miserable. You even have built-in WiFi and four PCIe x16 slots of which two run at x8 configuration.

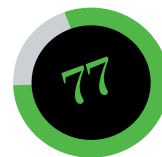
The audio has an EMI shield and an OP-AMP to help drive high impedance headphones. There is even a feature called Sonic Radar which portrays the direction from where certain sounds come from while playing games. Purists might call this a hack but we don't judge. You can even hot-wire the graphics card directly onto the OC Panel and then control the



Price
₹35,750
(+ Tax)

overclock directly. The BIOS allows you to customise so many options that you'd constantly end up screwing up your bios configuration. Thankfully, they've included a secondary BIOS chip for these scenarios.

Mitbun Mobandas



Features	69
Build	85

Specifications

Chipset: Intel X79; **Memory support:** 8x2800(OC)MHz upto 64GB; **LAN:** Intel 82579V Gigabit Ethernet; **Audio:** ROG SupremeFX Black 7.1; **SATA:** 6x SATA III; **Expansion:** PCIe x16, 2x PCIe X16(x8+x4); **Dimensions (LxWxD):** 305 mm x 272 mm; **Warranty:** 3 years.

Contact

ASUS Technology Pvt. Ltd.
Phone: 18002090365
Email: reachus@asus.com
Website: <http://www.asus.in/>



SteelSeries Sensei wireless

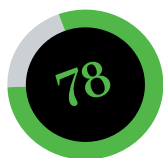
SteelSeries recently announced the availability of its Sensei wireless gaming mouse for \$160. The mouse is SteelSeries Engine 3 CloudSync compatible. <http://dgit.in/NewSensei>



Hasselblad Lunar

The camera that made it to the mood and back – \$910,000 <http://dgit.in/1oTOXUB>

Bazaar



Features 76
Performance..... 79
Build 80
Value 75

Specifications

Display: 14-inch, 1366x768 res; **CPU:** Intel Core i5 4200U; **RAM:** 4GB; **HDD:** 500GB; **OS:** Windows 8 Pro 64-bit; **Connectivity:** Ethernet, Wi-Fi 802.11 bgn, Bluetooth, SD Card; **Battery:** 3 cells; **Other features:** Fingerprint reader, TPM, Dust Defender; **Warranty:** 1 yr

Contact

Acer India Pvt Ltd
Phone: 1800 103 3311
Website: www.acer.co.in

Acer Travelmate P645

Does what it claims to do very well indeed

The Travelmate is Acer's notebook series of business machines, and the Travelmate P645 is one fine specimen of the bunch. It's built well, which is a great quality to have in any business laptop, with no creaky joints or parts that flex overmuch – all credit to a metal alloy body and metal hinges. The 14-inch form factor of the laptop weighs just 1.52-kg which is great to carry it around the boardroom or long-distance flights.

The Travelmate P645 has good hardware features, when it comes to processor, RAM, hard drive, etc., and other basics, as you can see from its specs sheet. All the parts used are latest and this ensures the machine performs well, whether it's multitasking or some occasional entertain-



Price
₹67,412

ment, as its multimedia performance is quite nice. The matte screen is great for reading texts and its non-reflective nature's a rarity on screens this day. The P645's security features include a fingerprint reader and onboard TPM module to encrypt all your sensitive data. The laptop sports great battery life lasting over 4 hours on benchmark test, which is indicative of up to 7-8 hours of real-world usage.

Its only downer was the laptop's keyboard which had keys with very short travel, making fast typing a bit difficult. But we are truly nitpicking here. If you want a thin, ultraportable business laptop that looks fine and performs admirably, the Acer Travelmate P645 is worth considering.

Jayesh Shinde

Minix Neo X7 Android Media Hub

Packing enough punch in a small form factor

You might not have heard about Minix but they seem to be an established brand. The Neo X7 is the latest that they have to offer and has a beefy 1.6 GHz quad core processor coupled with a Mali 400 (SoC Rockchip RK3188). Its more than sufficient to play 1080p videos without any noticeable lag in playback. Even after having a 1080p movie play for close to an hour on the Neo X7, while playing trailers on the Youtube app for extended periods did not cause the device to heat up. What we did notice was that the Antutu benchmark would only run at 1280x720 and not at 1920x1080 even when the screen was set to Full HD-60fps.

The device is well built and you have the option of

using the remote to navigate through the interface but it is quite cumbersome when you have to type. So when the need to type arises you'd be better off with a wireless keyboard and mouse.

The device runs on Android 4.2.2 so you don't need to worry about file formats since there are numerous players available for Android that can play almost every format under the sun, MX Player is the first

that comes to mind. Minix even included a custom launcher with the device but we still prefer the familiar vanilla android interface. The MINIX launcher is pretty simple with huge icons which can be seen from a long distance, alas, the remote is too finicky.

Mithun Mobandas



Price
₹14,990



Features 65
Build 75

Specifications

Processor: 1.6 GHz Quad-Core Cortex A9; **GPU:** Quad-Core Mali 400; **Memory:** 2GB; **Internal Storage:** 16GB; **Connectivity:** Wi-Fi 802.11n Dual-Band, 100 Mbps Ethernet; **OS:** Android 4.2.2; **HDMI:** 1.4a, Full HD 1080p, SD/MMC card reader; **Audio In/Out:** 3.5mm stereo, USB 2.0 HOST port x3; **Micro:** USB OTG port x1; **Power:** DC 5V 3A; **Warranty:** 1 year

Contact

Shri Satyam Electronics
Phone: 020-26898775
Email: NA
Website: www.universalsmarttv.com



Origin Genesis

Treat yourself to the lap of gaming luxury with the Origin Genesis. Read on to know more: <http://dgit.in/1gtqCDS>



On the verge of vox

Nilay Patel moves from Verge to Vox.com. Interesting career choice. Read on to know more: <http://dgit.in/1dictJ7>

ASRock H81 Pro BTC

It's time to start mining for cryptocurrency



Price
₹5,500
(+ Tax)

The world has gone nuts with cryptocurrency and everyone is into mining Bitcoins and other digital currencies like Litecoins, Dogecoins etc., So much computing power is currently in use in this domain that the difficulty of mining these coins has risen considerably (the number of coins mined is directly proportional to the difficulty).

One can mine these coins on all platforms, you can use your phone or tablet, your CPU or your graphics card. However, these platforms are no longer viable. The simple reason is that the difficulty parameter is so high that in order to break even you'd have to mine for hundreds of years. But that's not considering the electricity costs, bring that into the picture and you are never going to earn at all. Don't lose hope because now you have ASIC miners which are basically simple processors that can crunch a high volume of these calculations.

Graphics cards are similar to ASIC in function but the volume of calculations they can manage is considerably lower. Yet new ASICs have come into the picture that have been constructed to communicate via PCIe which means one can still utilise a high computational workload on the motherboard. These cards, however, do not need the full x16 bandwidth that a PCIe port provides. x1 is more than enough since the data being sent is simply a hash and a set of instructions.

ASRock has come out with the H81 Pro BTC for this very purpose of mining coins using your PC.

This way you can start off on a familiar platform and then move onto something more complex when the need arises. The H81 Pro BTC has one PCIe x16 slot so that traditional GPUs can be mounted. In order to utilise the remaining five PCIe x1 slots you'll need to make use of PCIe riser cards which can communicate with traditional GPUs as well but don't expect to get video output from them.

Buildwise the board can't fit six GPUs since it is not only physically impossible but the heat generated by doing so will also be detrimental to all the components. Also there are two extra molex power connectors on the motherboard to supplement the GPUs and these need to be connected to the same power supply as the GPUs. Now that's a difficult prospect since traditional GPUs require a lot of power in terms of wattage. You'll need to daisy chain a couple of PSUs to obtain enough power to run all the GPUs at full load. Even the ASIC PCIe bitcoin mining cards require a lot of power, the 600 GH/s capable card requires 350W which is quite a lot. However, with six such cards your mining potential rises to $600 \times 6 = 3600$ GH/s. That translates roughly 0.366 bitcoins generated per day, that's \$207 per day.

The remaining components on the motherboard happen to be standard fare with the 5.1 audio output and gigabit ethernet port. And 16 GBs of RAM is more than necessary for a rig devoted to purely mining. Which is why a H81 chipset is all that you need, anything higher is completely useless. Our testing methodology pits this board against other high-end boards and thus, this board scores lower. But you need to keep in mind that this board is for a specialised purpose and thus is devoid of features that are generally available on other boards. USB 3.0 ports are not present on this board because the bandwidth that would usually have been allotted for USB 3.0 has been repurposed to make more PCIe slots available. Other than that, this board even has a parallel port and a COM port which means you can use legacy hardware with it.

One issue that we happen to have is that with this particular board they haven't included any riser cards which are absolutely essential in order to make use of this board in the first place. Other than that, the ASRock H81 Pro BTC is worth what you pay for and great to dabble in bitcoins.

Mithun Mobandas

58

Features41
Build75

Specifications

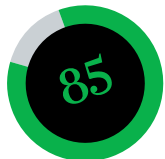
Chipset: H81; **Memory support:** 2x1600MHz upto 16GB; **LAN:** Realtek RTL8111GR Gigabit Ethernet; **Audio:** ALC662 5.1; **SATA:** 2x SATA III; **Expansion:** PCIe x16, 5x PCIe x1; **Dimensions (LxWxD):** 305 mm x 178 mm; **Warranty:** 3 years

Contact

Mediaman Infotech
Phone: 022 - 43441111
Email: sales@mediaman.co.in
Website: <http://www.mediaman.co.in>

Plantronics Voyager Legend UC

Single solution for bluetooth on smartphone and for VOIP on PC



Features 90
 Performance..... 90
 Build 80
 Value 70

Specifications

Compatibility: mobile phone/tablet and VOIP via Bluetooth; **Connectivity:** Bluetooth; v3.0 + EDR; **Headset weight:** 18 grams

Contact

Plantronics India Pvt Ltd
Phone: +91 124 4105192 / 93
Website: plantronics.com

The UC package includes a Bluetooth dongle for connecting to the PC, and a charging case that doubles up for storage

as well. The case itself is brilliantly designed, with the smoked translucent lid.

The battery in this case can be charged via the Micro USB port.

Hooking up to Bluetooth is a fairly simple activity. This works with any PC or Mac, and is designed for use with VOIP calls, like Skype. The one headset solution for your phone and the voice over IP calls on the PC works well.

The sensing feature in the Voyager headset is extremely neat, and understands when you are using the headset and when it is lying on the table or in a bag. Receive an incoming



Price
₹12,990

call, pick up the headset and put it to your ear - the call is automatically answered.

Similarly, remove the headset from the ear during a call, and the call is transferred back to the phone.

Plantronics has positioned the Voyager Legend UC offering more at the business user, more than someone who needs a Bluetooth headset just for using with the smartphone.

The price isn't the most affordable, but the dual usage is brilliant for the workstation. The call quality is brilliant, thanks to the improved mics, and the battery life is very good. Consider this, if you want one solution between your smartphone and Skype.

Vishal Matbur

Steelseries 6G V2

A rugged vanilla keyboard

The Steelseries 6GV2 is a scaled down variant of the Steelseries 7G, with the palm rest taken out. Also missing are the audio and USB ports. Other than the palm rest, the differences barely make any difference to the way the keyboard affects your typing. If you've moved from a non-mechanical keyboard to the 6GV2 then you can expect a lot of accidental key presses along the bottom row.

However, that only takes a little getting used to. The major advantage to the Steelseries 6GV2 and it's higher-end variant is that these units are built to take a lot of punishment. The construction of the boards made ample use of metal and plastic adding to the overall weight of the keyboard.

It is one of the heaviest boards that we've had the pleasure of experiencing. The base of the board has 4 rubberised feet that give it a little traction, and the increased weight helps keep the board from moving at all. Something that arose after a lot of usage was that of key-popping.

The 2m cable is a huge boon and they keyboard features 6 key rollover on the USB port which is more than adequate for a gaming keyboard.

The left Windows key has been swapped out for a Steelseries key that enables media control. While this is a

welcome change while gaming, the inability to map this very key to anything else is a little cumbersome.

Overall, the keyboard is quite durable and performs well.

Mithun Mobandas



Price
₹7,730



Features: 60
 Build Quality: 55
 Value for money: 55

Specifications

Key type: Mechanical - Cherry MX Black; **Key count:** 104; **nKRO:** 6KRO; **Macro keys:** 0; **Body material:** plastic and metal; **Backlit:** No; **Game mode:** No; **Cable length:** 2m; **Dimensions:** 84 x 55 x 320 mm; **Warranty:** 1 year

Contact

Faxtel Systems Pvt. Ltd.
Phone: 91-022-2611 3055
Website: mumsales@faxtelindia.com

Tablets under ₹25,000



Google's killer product

A long and insightful take on how Google's the only company with a successful smartwatch in the works: <http://dgit.in/1fdpW0h>



A rare scientific feat

Regale in the moment when a Stanford physicist's 30 yr old theory's proven right. <http://dgit.in/OUuUIC>

A Clean Slate

We test ten affordable quad-core tablets from reputed brands and a few from new kids on the block to see which one makes the cut for your best needs





The web's next 25 years

The WWW is 25 years old, but how will it evolve in the next quarter century? We investigate: <http://dgit.in/1gUo3oA>



Universe's size

A very easy explanation to understanding the size and scope of the universe. <http://dgit.in/OUxCxH>

Tablets under ₹25,000

Kunal Khullar

kunal.khullar@thinkdigit.com

The defining benchmark of a Post PC era is that tablets are becoming hugely popular and are giving a stiff competition to laptops and ultrabooks. And why not? They are much more portable and offer almost all the features and capabilities one can get on a laptop. Most modern-day tablets are easily as powerful (if not more) as two-three year old laptops.

The 'slate' has been prevalent for quite a few years but the modern age tablet gained popularity and traction in the year 2010. In our opinion the credit goes to Apple for shaping the tablet market when it released the first iPad in 2010 and pushed tablet segment into the mainstream consumer market. The company also brought in capacitive touchscreens to the tablet category which meant that users could just tap away with their fingers without having to rely on a stylus pen. A number of manufacturers followed Apple's move and today every hardware-based technology company operating in

the consumer space has a tablet to offer.

According to the International Data Corp. (IDC) the year 2013 saw a rise of 50.6% in tablet sales with the worldwide tablet shipments totalling to 217.1 million, an increase from 144.2 million in 2012. For the Indian market, researchers have predicted that the period of 2013-2014 will see a boost of 50% in the sales on tablets. These numbers are actually huge and are a big threat for laptop makers as the tablet has been marginalizing PCs and laptops for quite some time. A large chunk of the total number of tablets in the market is occupied by Android as it has become the dominating platform in the mobile device industry purely by number of devices adopting it. Apart from Android one can even get their hands on a Windows 8.1 running tablet under a budget of ₹25,000 which provides the Modern UI, as well as proper desktop mode just like a PC.

Today, manufacturers like Apple and Samsung offer tablets in a premium range but a large portion of consumers in the Indian market opt for more affordable tablets to fit their budgets. While we are on the subject, the budget category of tablets has widened a lot and with Indian brands bringing in a mix of their own products, there has been an increase in variety as well. If we look back to 2013, getting your hands on a powerful tablet meant shelling out a lot of money. But times have changed and one can easily get a tablet running on a quad-core processor with plenty of features under a budget of ₹20,000 without breaking a sweat.

For this shootout we have picked tablets from well-known companies and also some indig-

enous brands which provide some competitive features. The focus here is on tablets selling around ₹25,000 which attracts the majority of the consumers. We have included eight Android tablets namely the Dell Venue 7 and Venue 8, iberry Auxus CoreX8, iBall Slide 3G Q1035, Micromax Canvas Tab, Google Nexus 7 (2013), MTV Slash 4X and Simmtronics XPad Turbo. We have also included two Windows 8.1 tablets one from Dell and one from Acer.

THE PLATFORMS

Android had stepped into the tablet game by releasing a different version altogether (3.0 Honeycomb) which was specifically designed for tablets. It did not gain a lot of popularity back then, so Google scrapped it off and made a unified version (4.0 Ice Cream Sandwich) that would run both on smartphones and tablets.

Today the platform is on the verge of becoming the most selling tablet operating system and the numbers are just going stronger by the day. Almost all of the Android tablets that we have tested run on Android 4.2 and the only tablet with the latest KitKat update was the Nexus 7. Hopefully manufacturers will be announcing some new tablet this year with Google's latest 4.4.2 update. With almost 2 million apps available on the Google Play store, Android tablets are poised to take over the industry.

When Microsoft had announced that Windows 8 will feature an app ecosystem on top of the traditional desktop layout, it seemed logical that the OS would be ported to tablet devices. The good part is that one can get a full-fledged desktop/laptop experience but the bad part is that using its



MTV Slash 4X

touchscreen on the desktop mode is a real pain. The tiled UI is similar to what we have seen on Windows Phone devices and the apps work in a similar fashion. With the app development steadily going stronger, Windows 8.1 tablets could soon gain a decent market share.

PERFORMANCE

Tablets today offer a blazing performance and manufacturers have to cram in some high-end hardware to achieve that. Apart from hardware, an optimized OS is very crucial. Now it doesn't make sense buying a tablet with a good set of specs but a sluggish interface, does it?

The Acer Iconia W4 runs on an Intel Bay Trail processor with four cores which means that the tablet can perform functions as smoothly as one can do on a laptop. Since the tablet runs Windows, you can install proper softwares like PC games as well as apps from the Windows App store. The tablet didn't disappoint us at any time as it managed to run



Simmtronics XPad Turbo



China's fighter drones

See how China's battling smog and pollution with the help of drones to catch polluters and disperse smog: <http://dgit.in/1dJqpXr>



Nike's new shoe

Take a look at this half-sock, half-shoe designed specially for the world cup. <http://dgit.in/1jA8sOB>

HD videos, open multiple apps and softwares, and was pretty smooth in the gaming department as well.

We also ran a couple of benchmarks on the Iconia W4 and found the scores to be pretty decent. Even in the battery test we found that the tablet can continuously play full HD videos for about 7 hours, which is quite good for a tablet in our experience. But to be honest, it was a pain to use the touchscreen in the desktop mode as it requires very precise tapping. Using a mouse via Bluetooth made the experience much better, but that just kills the purpose of having a tablet in the first place.

The only logical competitor to the Acer tablet is the Dell Venue 8 Pro. While this also is Windows 8.1 tablet, the Venue Pro 8 seemed slightly faster in terms of performance. In the benchmark and the battery tests, the Venue Pro 8 proved to be better than the Acer Iconia W4 simply because it runs on a faster processor with more RAM and has a larger battery. In the benchmark tests the Venue Pro 8 achieved higher scores thanks to its faster processor.

The Nexus 7 is said to be the king of Android tablets and in

our opinion it is justified to give the title to this tablet. Running on a 1.5GHz quad-core processor with 2GB of RAM, combine that with the latest Android 4.4.2 KitKat OS and you have a super smooth and powerful tablet. Be it gaming, watching videos or just browsing the web, the Nexus 7 does it all with ease and class. In the benchmark scores the Nexus 7 fell short by just a few numbers, but on a daily basis the tablet is actually much faster and responsive. It is also worth mentioning that the 5MP camera on the Nexus 7 was way better than almost every tablet in the shootout. Among all the Android tablets that we tested in the shootout, the Nexus gave the most battery backup off a single charge cycle. The test proved that the Nexus, even with the full HD resolution, can play a full HD video non-stop for 12 hours. Pretty fantastic!

The Android running tablets from Dell, the Venue 7 and Venue 8 seem identical but there is a slight difference. While the Venue 7 runs on a 1.6GHz dual-core processor, the Venue 8 runs on 2GHz dual-core processor. This makes a huge difference as the Venue 8 performed much better in the benchmark tests. Although we didn't notice a huge difference when we ran some games and performed daily tasks like email, web browsing and social networking. The Venue 7 was actually quite impressive because the tests concluded that it is almost as powerful as the Nexus 7 and available at less than half the price which makes it a great value for money. Both of the Venue tablets come with a similar 4100mAh battery, but the Venue 8, even with the larger



iberry Auxus Core X8

display offered a slightly longer battery backup.

In our opinion Auxus CoreX8 by iberry offers the most impressive hardware, including an Exynos octa-core processor with 2GB of RAM. And yes the hardware does deliver as it aced the benchmark tests in almost every performance department. Gaming and watching HD videos was a sheer pleasure as the tablet managed to provide a very fluid performance. The Android UI however was a slight disappointment as it wasn't entirely perfect as on random occasions the tablet lagged a bit, for no apparent

reason. Overall the tablet delivers a surprisingly fast performance even though it comes from an underrated brand, which is good to see.

The Micromax Canvas Tab is just a stretched out Canvas Doodle 2. This tablet has a similar looking UI as most of Micromax smartphones which is mostly stock Android with a bit of extra apps and customized icons. In our benchmark testing, the tablet gave an average performance although it manages to multitask quite

well and apps run quite smooth. Graphically heavy games like Real Racing 3 and Dead Trigger 2 showed signs of lag but games like Temple Run 2 and Angry Birds Star Wars did not give us any issues. In the battery tests we calculated that the Canvas Tab can go on for five hours of constant video playback. The tablet also offers calling capabilities which is pretty decent, although using the device as a phone is a bit uncomfortable.

In the performance test the iBall Slide 3G Q1035 got a very average score. The tablet is powered by a 1.2GHz quad-core processor and to power up the large



iBall Slide 3GQ1035



Dell Venue 7



Steam controller prototype

It's only been 6 months, but things are moving fast on the Steam Controller. Check the latest version: <http://dgit.in/1nWkDLQ>



Verify email address

Here's a quick tip to find out if email addresses that you want to contact exist or not. <http://dgit.in/1oYmqgt>

Tablets under ₹25,000

HOW WE TESTED

The market is dominated by Android tablets in terms of variety and it makes sense because Google has vastly improved on the platform. One can easily get an Android powered tablet for as low as ₹10,000. Consumers use tablets to watch movies and videos, browse the web, play games, read ebooks, catchup with people on social networks and so on. In the corporate world, tablets are vastly used to make and show presentations and even do a bit of document editing. Photographers and graphics designers have started shifting to tablets as these portable devices offer flexibility as well as tools for editing on the go. Therefore, testing them objectively is a very important task, something that we take seriously here at Digit's Test Centre.

We have a balance of performance and design. Each tablet goes through a series of tests based on performance, specifications and the design. We see how well does the tablet perform on a day to day basis by running a series of industry standard benchmarks.

Performance Benchmarks: The performance test includes synthetic benchmarking, where we install and run apps like Quadrant, Antutu, 3DMark, GFXBench and Smartbench at uniform settings and compare scores across the category. These benchmark apps help us rate the performance potential of every device. Higher the scores, the better the tablet is supposed to perform when used for productivity and multitasking.

Battery life: Having a long lasting battery is crucial these days so another part of the performance test includes our standard battery test to find out how long each tablet would run after a

full charge. For this, we play a full HD video on each tablet after charging it to 100 per cent with the maximum display brightness. After 1 hour of playback, we determine the battery loss and calculate how long the tablet would last if we run the video continuously.

Gaming experience: Gaming is something which has gained a lot of popularity on mobile devices and tablets offer the perfect dimensions for a comfortable gaming experience. Tablets relatively have large display panels so they require a lot of power as well and the games are heavy on graphics which again stresses the GPU. We played a few games like Dead Trigger 2, Real Racing 3, Temple Run 2, Asphalt 8: Airborne and Angry Birds to see how well the GPU on the tablets can handle the high frame rates. We also focus on how smoothly the game performs and if there is any noticeable lag.

Build quality: Since a number of brands have started manufacturing tablets, the competition is stiff and to have a unique look and quality of design, OEMs are providing consumers with some really sturdy products. We have given points to each tablet taking into consideration the build quality, material used, portability, thickness and the overall experience of using each tablet. A high quality design can make a huge difference as the tablet is still considered to be a lifestyle product.

Other parameters: Apart from the above, we also tested how each tablet can handle multimedia content including HD videos in various formats, music playing capability, speaker performance, and also the camera quality. This helps us ultimately rate these devices in a fair manner.

10.1-inch 720p display there is a chunky 6000mAh battery. The UI did seem to stutter a bit although apps and games ran perfectly fine and we didn't notice any major issues. Multitasking and multimedia content was very smooth and the tablet managed to play almost every video format with ease.

Gaming experience was decent as graphic hungry games like Asphalt 8 and Dead Trigger2 were smooth. In the battery test we found that you can play a full HD video non-stop for 8 hours after a full charge to 100%.

The lowest powered tablet was the Simmtronics Xpad Turbo which comes with a

dual-core processor with a mere 512MB of RAM. Running on Android 4.2.2 the tablet was quite sluggish and at times had a slow response time. It has voice-calling facility and one can also use a SIM to gain 3G data connectivity. Basic apps and day to day productivity seemed decent, but watching full HD

videos and playing games with high-end graphics takes a toll on the hardware.

The MTV Slash 4X is a quad-core tablet which is priced at almost the same as the Simmtronics Xpad Turbo, however it is much more responsive and smoother in terms of performance. Its performance on the

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Online ads crisis

A research suggests that 33 per cent of all online traffic is bogus, driving marketers crazy: <http://dgit.in/1hk0DKr>

**Google cuts storage costs**

In a step guaranteed to shake up the market, Google has drastically cut costs for its cloud storage service. <http://dgit.in/1oYr5ze>

Slash 4X was comparatively decent for a sub-₹10,000 tablet although we wish that the manufacturer had ironed out some of the minor lags it experiences. The tablet didn't manage to run high-end games smoothly and even crashed on a few occasions. Games like Temple Run 2 and Angry Birds seemed to work just about fine. HD video playback and other multimedia content didn't show any issues and everything was smooth. There is calling facility on the tablet and it works perfectly fine with clear audio quality.

BUILD AND DESIGN

A high quality design and an attractive look has become a crucial factor for gadgets these days. A very general rule implies here, higher the price better the quality. Tablets have gone much slimmer and much more portable than what they used to be a couple of years back and with such high competition, manufacturers have been producing tablets with a premium finish at an affordable price.

In the build and design test, we have rated each tablet based on a number of things like the quality of material, placement of keys, the responsiveness of the display, portability and also the aesthetics of the tablet.

The iberry Auxus CoreX8 proved to be the most powerful tablet in our performance test and to be honest it has a fairly good looking design. It does resemble a lot to the design philosophy that Samsung uses with its tablets and smartphones with a curvy design and glossy plastic finish. It has a 7.8 inch display and offers more of a 4:3 ratio. The home key is a proper hardware key which is a bit low on quality as it wiggles about. The settings and back key are capacitive placed on either sides of the home key. The tablet offers a proprietary charging port and can be charged via the standard microUSB port as well. The back is all glossy plastic and houses the 5MP camera.

The Windows 8.1 running Acer Iconia W4 has a very standard tablet design which can fool you very easily as it offers a brushed metal finish, but the tablet is actually made of plastic. It weighs about 430 grams which makes it feel a little heavy although it seems pretty compact due to its 10mm thickness. The 8 inch display offers a resolution of 1280x800 pixels. The screen is bright and vibrant and offers good viewing angles too. Overall Acer has done



Micromax Canvas Tab

a good job with the Iconia W4 however we must confess that 8 inch displays seem too small when using the desktop mode.

Both of the Dell Venue tablets have an exactly similar design and even the placement of the volume and power/lock keys, is similar. The back has nice rubberized finish which brings a really nice grip to the tablets. The only difference in the looks department is the size as the Venue 7 is smaller than the Venue 8. Apart from the screen size, one cannot tell these two apart. The overall finish of the tablets is exceptionally good and loved the display, even though it isn't full HD.

The Dell Venue 8 Pro Window tablet shares its design with its Android siblings and has the exact form factor as the Venue 8. The only difference is that the Venue 8 Pro has a different texture at the back. Apart from the screen size issue on Windows tablets we addressed earlier, we weren't happy with the placement of the Windows start key. One has to reach all the way for the edge; which is less than ideal.

One of our favourite tablets was the Google Nexus 7 (2013) and although it isn't one of the flashiest looking tablets, it is the most practical. The 7 inch IPS panel is crisp and has a full HD resolution which means it has

the highest ppi among all the tablets that we tested. The design is pretty slim and makes it easy to carry in the back pocket of your jeans. The 2013 version is a great update from last year's Nexus 7 as it is way more sleek and faster. The Nexus 7 was the slimmest tablet with a thickness of just 8.7mm.

The Micromax Canvas Tab looks a lot like a stretched out version of the Canvas Doodle 2. It has a nice strong back which gives off a metal finish, but isn't entirely made out of metal. Although we did love the quality of its external casing. The 8-inch display has a 1024x768 pixel resolution giving it 160ppi pixel density. Content on the display



Google Nexus 7 (2013)

lack details and the display itself is reflective. The viewing angles are good but we wish the resolution was better. The Canvas Tab is the second tablet in the shootout which offers a display with a 4:3 ratio. The ratio is not a problem when browsing the web or playing games, but when you watch HD videos, there is a waste of real estate as we know HD videos have a widescreen



Dell Venue Pro



Facebook's next-gen tech

See how Facebook's facial recognition tech's as good as the human brain at detecting people's faces <http://dgit.in/1dJvoaO>



A new diamond wire

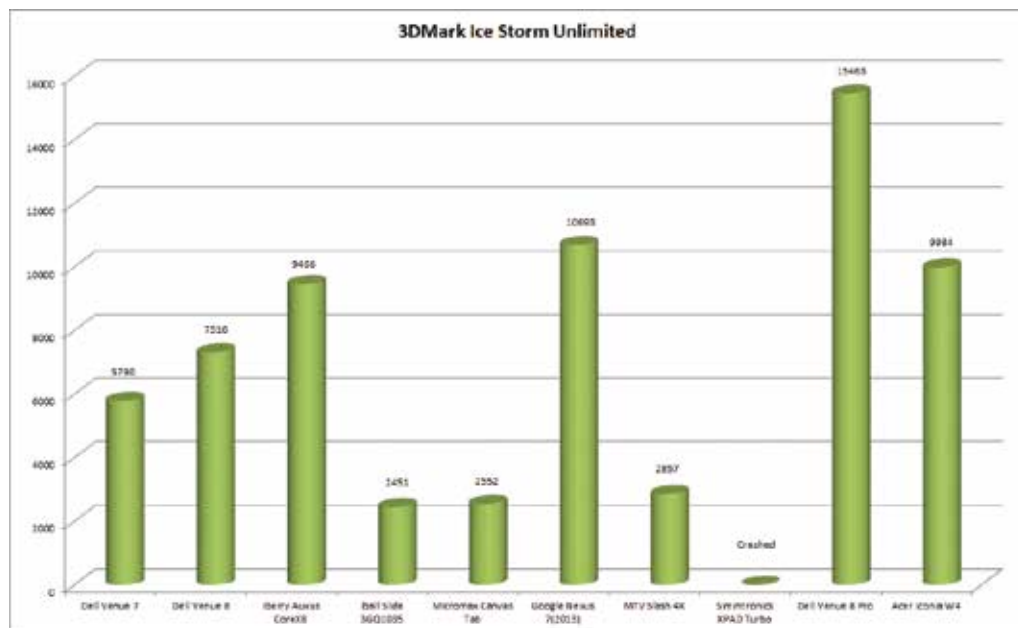
Researchers have created a new diamond wire to revolutionize computing. <http://dgit.in/1dIDRWP>

Tablets under ₹25,000

aspect ratio. The rear houses a camera without a flash and the speaker. The top has the headphones jack, microUSB port and the power button. The right of the tablet houses the volume rocker and a flap below which rests the microSD card slot and the SIM card slot.

The biggest tablet that we tested in the shootout was the iBall Slide 3G Q1035, boasting a 10.1 inch display with a 720p resolution. The tablet has a plastic back with a brushed metal finish and due to its big size it is quite bulky and heavy. The overall finish is quite decent but somehow seems a bit clunky. One of the corners has the power/lock key and the volume control keys and also a back key to make operations easy on the large sized tablet. The tablet is equipped with stereo speakers and an 8MP camera with an LED flash. While the 8MP resolution camera sounds good for a tablet, it didn't seem to impress us all that much as the pictures produced didn't have sharp details and were high on noise. There is also an HDMI out port which enables you to connect the tablet to a larger display.

The MTV Slash 4X which is one of the most affordable tablets in the shootout offers dual-SIM capability along with a 7-inch display. The design is



Graphics performance of all tablets analyzed. Just see how the GPU stats vary among devices.

compact although the quality of plastic used doesn't have the best of quality. There is a 2MP camera with an LED flash on its back, and the top houses the microSD card slot and the SIM slots. The left edge has the power/lock key and the volume controls and the bottom has the microUSB port and audio jack.

The Symmtronic Xpad Turbo seems almost like a phablet due to its small design. It has an all-plastic finish which seemed of low quality but again, it is available under a budget of ₹10k so there has to be a certain compromise. The 7-inch display offers a 1024x600 pixel reso-



Dell Venue 8

lution which is quite less and the touchscreen was a bit slow on response. The tablet offers a SIM card slot so you can make voice calls and also use the SIM for 3G data connectivity which is an added advantage. Overall the tablet gives a bit of clunky feel, but there has to be some compromise if you are looking at a very affordable tablet.

WINNERS

After the thorough testing procedure, we finally come down to conclude the winners. For this tablet battle we are giving away two categories of awards, one to the tablet which offers the

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BELOW



Brand	Simmtronics XPAD Turbo	MTV Slash 4X	Dell Venue 7	Micromax Canvas tab	iBall Slide 3GQ1035
Price	7,999	9,999	10,999	14,999	17,499
Performance (of 40)	14.65	21.64	26.87	21.36	20.79
Specs (of 30)	13.5	14.7	17.4	17.7	21
Build and Design (of 30)	18.89	19.78	21.56	20.67	20.89
Overall (of 100)	47.04	56.12	65.82	59.73	62.68
Rear camera	2MP	2MP	3.15MP	5MP	8MP
Front camera	VGA	VGA	VGA	2MP	2MP
CPU speed	1.2GHz	1.3GHz	1.6GHz	1.2 GHz	1.2 GHz
CPU cores	2	4	2	4	4
OS	Android 4.2.2	Android 4.2.2	Android 4.2.2	Android 4.2.1	Android 4.2
MicroSD card expansion	Y	Y	Y	Y	Y
RAM	512MB	1GB	2GB	1GB	1GB
Display	7 inch	7 inch	7 inch	8 inch	10.1 inch
Display resolution	1024x600 pixels	1024x600 pixels	1280x800 pixels	1024x768 pixels	1280x800 pixels
Display PPI	169	169	216	160	149
Battery capacity	2800mAh	3000mAh	4100mAh	4800mAh	6000mAh
Weight	273gms	286gms	234 gms	NA	NA
SIM slot	Y	Y	N	Y	Y
Built-in Storage	4GB	4GB	16GB	16GB	8GB
USB OTG	N	N	N	Y	Y
HDMI Port	N	N	N	N	Y
Battery after 1 hour of video	82%	73%	80%	80%	88%
Benchmarking					
Antutu	10787	15874	19541	13337	13281
Quadrant	3121	5925	8935	4050	4747
Smartbench 2012 (productivity)	2093	4055	3826	3554	3778
3dMark Unlimited	0	2857	5790	2552	2451
GFXBench 2.7 T-rex Offscreen	NA	NA	NA	NA	NA
GFXBench 2.7 T-rex Onscreen	NA	NA	NA	NA	NA
GFXBench 2.5 Egypt Offscreen	NA	NA	NA	NA	NA
GFXBench 2.5 Egypt Onscreen	NA	NA	NA	NA	NA

Best Buy and the Best Performer. There is also a special category of the editor's choice, which is purely our recommendation.

For the Best Buy, it's a tie! Both of the Dell Venue Android tablets take away the **Best Buy**

Awards since both offer a great set of specs and performance at an affordable price tag within their price brackets. Tablets like the Simmtronics Xpad Turbo and MTV Slash 4X are available under ₹10,000 how-

ever if you want a much better performance and a quality design one should definitely go for the Dell Venue 7 which is available for about ₹11,000. For an extra ₹7,000 we have the Dell Venue 8 which offers a

larger real estate along with a faster processor.

The **Best Performer Award** goes to the iberry Auxus CoreX8 as the Exynos octa-core SoC powered tablet churned out some great numbers in the

₹25,000

ABOVE ₹25, 000



	Dell Venue 8	iberry Auxus Core X8	Dell Venue 8 Pro	Google Nexus 7	Acer Iconia W4
	17,499	23,990	26,499	26,990	26,999
	31.45	32.54	29.96	29.75	25.98
	17.4	20.7	18.6	18.6	18.6
	21.33	19.33	19.56	20.44	20.67
	70.18	72.57	68.11	68.8	65.25
	5MP	5MP	5MP	5MP	5MP
	2MP	2MP	1.2MP	1.2MP	2MP
	2GHz	1.8GHz	1.8GHz	1.5GHz	1.3GHz
	2	8	4	4	4
	Android 4.2.2	Android 4.2.2	Windows 8.1	Android 4.4.2	Windows 8.1
	Y	Y	Y	N	Y
	2GB	2GB	2GB	2GB	2GB
	8 inch	7.8 inch	8 inch	7 inch	8 inch
	1280x800 pixels	1024x768 pixels	1280x800 pixels	1920x1200 pixels	1280x800 pixels
	189	163	189	323	189
	4100mAh	4800mAh	4830mAh	3950mAh	4960mAh
	292gms	388gms	394gms	299gms	430gms
	N	Y	N	Y	N
	16GB	16GB	32GB	32GB	32GB
	N	N	Y	N	Y
	N	Y	N	N	N
	84%	75%	93%	92%	86%
	22885	28476	NA	20493	NA
	11000	8434	NA	5069	NA
	4547	5020	NA	4525	NA
	7316	9466	15463	10693	9984
	NA	NA	849	NA	800
	NA	NA	1173	NA	1147
	NA	NA	4367	NA	3716
	NA	NA	4075	NA	3918

benchmark tests as well as the gaming tests. While the OS felt slightly sluggish, the tablet managed to still get the highest scores in our benchmark tests as well as multitasking and gaming performance. It is also

pretty bold in the multimedia department, running with any issues while playing different video formats and music playback. The only reason not to consider the iberry Auxus CoreX8 is the fact that it comes

from a brand which is not so well known and after sales service could be an issue.

For the **Editor's Choice Award**, the Google Nexus 7 was a clear winner because it is simply a no-nonsense tablet

with a simple design, a brilliant display and the capability to offer high performance. It's the smoothest, most bug free tablet that we tested and the quickest to get updates than any other tablet device. **4**

Future Tech: The Next Generation

All facets of the human life improve with each scientific innovation, here are some of those innovations

Samir Alam

readersletters@tbinkdidgit.com

"Any sufficiently advanced technology is indistinguishable from magic."

– Arthur C. Clarke

The challenges humanity has overcome with innovations in the sciences and technology is staggering; from the first use of stones to butcher dead animals by the Olduvai in Tanzania nearly 2.5 million years ago, to the upcoming use of electromagnetic thrusters in the Variable Specific Impulse Magnetoplasma Rocket to travel to Mars at speeds of up to 1,80,000 kmph. In the meanwhile, we as a species have split the atom, put a man on the moon, rewrote the genome, connected humanity and developed technology that can store the archive of human creation in our pockets. And we're not done yet.

The following are some of the most critically relevant technologies of the coming years that will not only shape the way we live our lives but also determine how well we live it.

Grid-scale Electricity Storage

The problem with power has always been that of storage. We could develop the most revolutionary source of renewable energy in the future but without an effective means of storage most of it would go to waste. This is where research into grid scale electricity storage comes into play. The next generation of innovation is aimed towards fixing this gap and



A battery made using everyday materials being assembled at Urban Electric

make possible efficient storage of massive amounts of energy for future use.

So far numerous different methods of energy storage have been developed, such as flywheels, compressed air, batteries, hydrogen storage, pumped-water storage (dams), superconducting magnetic energy storage and thermal storage. Each of these methods have varying efficiencies, for example – batteries allow for at the very least 50 percent of the energy stored to be retrieved whereas thermal storage techniques can potentially allow 99 percent

energy retrieval. But these efficiencies have all been pushed to the maximum range in different projects around the world and broadly range between 90 to 99 percent efficient storage. The real challenge is making them cost effective.

In this regard most of the investment has been in large scale batteries; a key example is the largest grid scale battery ever created, in Sendai Miyagi Japan which has a storage capacity of 40,000 kilowatts (40 megawatts) and is expected to be online in early 2015. This pilot project by Toshiba will augment the existing power grid with energy generated from the variable wind and solar generators. On the other side of the world, chemical engineer Sanjoy Banerjee's start-up company in Harlem, New York called Urban Electric has developed a cheap, safe and efficient battery in a miniaturised form using everyday non-toxic materials.

Alternatives to battery technology which are better linked to renewable

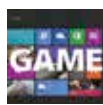


Sendai Substation Li-ion battery pilot project



A prediction on Internet of things

Gartner recently predicted that emerging wearable connected devices will spark off a big supply chain reaction. More here: <http://dgit.in/IOTSpark>



Windows vs Steam?

Read the article to see what Windows has to say about Valve <http://dgit.in/1m2jMEN>

From the labs

sources like solar are being developed in the form of thermal storage. This technology relies heavily on the natural weather patterns of a region such as sunlight to generate high energy output; in Spain for example, parabolic troughs or mirrors use the focused heat from the sun to store energy in a non-toxic, non-flammable mix of sodium, potassium and calcium salts. These molten salts can be stored up to a week and used to generate electricity in a superheated steam turbine generator when electricity is needed. The Solana Generating Station in the United States is another example of one such generator in active service. It was built by the Spanish company Abengoa Solar not only as an environment friendly power station but also has a storage of 280 megawatts of energy.

The task of achieving the goal of affordable, efficient energy storage is a global one with many first world countries leading research and development. And the innovators who crack the barrier in making grid scale energy storage more efficient and affordable will not only make power distribution better but allow developing renewable sources of energy like solar and wind to become a viable alternative for large scale energy production and usage. And this breakthrough could change the way countries are placed in the struggle towards fulfilling their energy needs.

Screenless Display

Despite the counterintuitive idea of a screenless display we have seen it conceptualised for decades, and as of now it has never been closer. The idea of a screenless display device has been seen in all forms of popular media from movies to video



Google Glass – screenless display goes mainstream

games, and with its universal utility in cell phones, cars, televisions and personal computers, scientists have already started producing a range of prototypes. These new devices could very well be the next standard device in every household.

Designed with a variety of perspectives, from projection control to hologram displays, these new devices are all part of the next wave in display technology. The most immediately accessible and perhaps most popularly known is in the form of Google Glass. Almost everyone has seen or heard of the wearable eyeglass-like computer created by Google. The technology behind Google Glass presents a layer of augmented reality over the user's sight using a small display device where the lens would be placed. The augmented reality perspective allows the display of text, information and images about the user's environment in real time as well as allows voice-activated interaction with the computer for other non-environmental tasks like email and phone calls. But this is only the first iteration of screenless display's that are in store for the future. The future is guaranteed to be stranger.

Another consumer accessible screenless display device is the Oculus Rift which has already created waves in the gaming world. The headset isolates the user from the outside world and presents visual displays from any programmed source. This form of virtual reality display takes advantage of motion tracking technologies to present an experience that is only limited by the graphics processor. The user-centric orientation combined with developing

data input devices even allow for the Rift technology being used in areas beyond gaming such as virtual robotic surgeries and air-traffic control.

The real next generation jump in screenless displays lies with innovations in holographic display technologies. Despite it's fledgling state in research and development, its potential is significant as it allows for an

interactive three dimensional image projection. Scientists are currently working with new materials and techniques to make it a reality, such as the use of optic lenses, helium neon and holographic film, which allows for a basic rudimentary holographic projection.

The most recent breakthrough came in 2013 from researchers at the Massachusetts Institute of Technology in the United States, who have already created a holographic-oriented micro-chip that can support the display of images at 50 gigapixels per second. The Object Based Media Group at MIT, that invented the e-ink technology found in e-readers like the Kindle, have used this chip to simulate real-life objects and its ability to augment projected light in multiple directions which make the use of 3D glasses redundant. Other researchers at Belgian company Imec's NVision division are utilising other approaches to the task which involves moving pixels created by reflecting lasers off microelectromechanical systems or MEMS, which are nano-components used to alter light particles.

These technologies have already excited consumer technology firms, with LG and Samsung investing millions to bring them to the users. In fact, Samsung has already filed patents in 2013 for "holographic televisions". And companies like Obscura Digital and D'strict (a design firm) have already experimented successfully with interactive projection technology using 3D projection and infrared motion sensing.

Human Microbiome Therapeutics

Moving away from purely consumer related technologies and gadgets that



An Oculus Rift demo



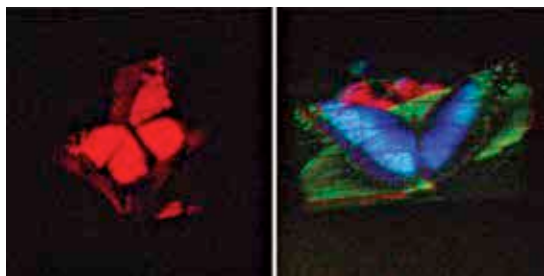
A new online video platform

YouTube and Vimeo have a new competitor – Wonder PL which provides ad-free exclusive lifestyle oriented video content. <http://dgit.in/WonderPL>



Android Wear

Google finally announced a special version of its Android OS tailored for wearable devices <http://dgit.in/WearDroid>



MIT researchers played out scene from Star Wars to test out their first hologram.

promise to revolutionise the world, we now look into the world of medicine and healthcare technology. Even as we invest billions in consumer technology for improving how well we enjoy life there is even more being invested in how well we live it and healthcare technology in human microbiome therapeutics is a huge part of that investment.

We've known for the longest time about the power of the gene but only recently have researchers of the current generation realised the practical benefit of larger biological entities like bacteria and fungi, popularly known as microbes. The human body itself is approximated to play host to over 10,000 microbial species and over 100 trillion microscopic organism which are present on the surface of the skin and also in our digestive systems - and they are a powerful part of human healthcare.

Scientists are catching up to understand the potential benefits microbes hold for humans with research such as the United States's government run National Institutes of Health's Human Microbiome Project. The four year old project has so far collected genomic data from nearly 200 microbes that could hold answers for human ailments. The project's goal is to catalogue and interpret the properties of 900 microbial organisms from human volunteers who are suffering from a variety of diseases. The investigation into how these microbes interact with human biology can hold critical answers towards creating new treatments and cures for a multitude of diseases, thus, saving millions of people.

The private sector is equally invested in seeking

out potential cures by researching microbes and companies like Second Genome have already begun their work analysing microbe DNA. By understanding the genetic mechanism of these microbes scientists at NIH and Second Genome believe that they can augment these trillions of organisms to enhance biological functions in humans like programmable organic nano-robots.

By augmenting the microbes present in the digestive tract researchers can make human digestion more efficient, allowing for less wastage of nutrition, which could prove invaluable in poorer nations.

Other aspects of human biology like resistance to diseases, concerns of obesity and heart disease mitigation and cancer prevention can also be addressed if scientists are successful in controlling how microbes operate in the human body. And even though the field of human microbiome therapeutics is still in its infancy its potential to radically change human life is universally accepted.

RNA-based Therapeutics

Technology that affects billions of people is usually invisible. Developments in fundamental sciences has become a natural part of existence like the harnessing of electricity and antibiotics. Without them life as we know it would be impossible. In this respect medical technology that creates life-saving drugs and treatments is one of the most important frontiers of innovation. And a new technique that is revolutionising how we provide treatment for millions of people is in the form of RNA-based therapeutics.

Ribonucleic acid or RNA is a fundamental part of any biological organism and instrumental in developing a new generation of medications that are more powerful

and safer than currently available options. Even over-the-counter medications such as *Dispirin* work by effecting specialised enzymes (proteins) in the human body through artificial chemical compounds. By controlling the levels of these proteins in the human body we are able to change human biology such as relieving pain and reducing cholesterol. And the use of targeted RNA therapeutics is an extension of this process.

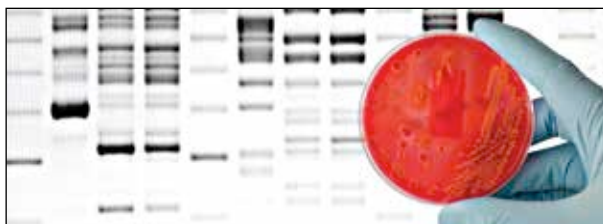
The next generation of medical research is concerned with narrowing the use of genetic research towards understanding more of how RNA-based treatments can benefit humanity. By delving deeper into the molecular dynamics of messenger RNA (mRNA) that give signals to enzyme creation in human cells, scientists have discovered a preemptive means of preventing diseases - microRNA (miRNA). According to current research microRNA control is the earliest step in



RNA based therapeutics

the chain of biological interactions that can put an end to the very origin of deadly diseases. At present most medications only work towards inhibiting some microRNA but further developments in RNA-based therapeutics might change this forever by creating anti-microRNA drugs.

Private firms like Regulus Therapeutics, Alnylam Pharmaceuticals and Isis Pharmaceuticals are driving the research in this field and are targeting a broad range of diseases such as hypercholesterolemia (pre-congenital high cholesterol), brain tumours, hepatitis and other life threatening diseases. One of the most recent creations by Isis targets microRNA that attack genetic hypercholesterolemia. Public research by the American government is also developing these techniques by experimenting with anti-miRNA drugs that target the replicating ability of the hepatitis virus. If they



Genetic re-sequencing can allow scientists to repurpose everyday microbes for medical use.



Last of Us: Left Behind

Read the Metal Gear: Solid 5 review if you've been waiting for the game like everyone else <http://dgit.in/1gtWGfG>



Missing Bitcoins found?

Mt.Gox claims that they have found about 200,000 missing Bitcoins out of the 850k which were originally lost. <http://dgit.in/SnoopCoin>

From the labs



Every human action can be recorded as a data point and give valuable insight like predicting diseases.

are successful they would be able to create a treatment and cure for nearly 200 million people globally who suffer from Hepatitis C.

RNA-based medications are already used in antisense therapy where they are targeted towards specific genetic infections and disorders in the human gene. Drugs developed in RNA therapeutics are so far restricted to the specific gene of the target disease but their scope as a technological mechanism is enormous. And as scientists discover more about critical diseases like cancer, they find that by restricting the creation of certain enzymes and proteins they can drastically slow down or even cure cancer in human beings. But at this stage this is only a conceptual reality that comes closer to reality as research progresses.

Quantified Self (Predictive Analytics)

We've already heard a lot about big data and predictive algorithms over the last couple of years. The idea that computer programming can help enterprises and individuals answer important questions and even predict event outcomes has already begun shaping the way we engage with technology. But the idea of the quantified self in predictive analytics is a phenomenon that has grown out of the potential that big data holds - to manage human health, lifestyle and efficiency for the better.

Big data hype tells us that since we are nearing the age of the internet of things (IoT) - a time when we will be surrounded by millions of sensor driven products which will be able to record our environments and actions for analysis, the amount of personal information generated is going to be overwhelming. This isn't that far from reality as even the most recently launched (March

2014) smartphone - Samsung S5 - comes with a heartbeat monitor pre-installed. Nike has for years been promoting its Nike+ products that measure various biometric aspects of professional and amateur athletes through sensors in their apparel. And as more and more wearable technology arises, from Apple's iWatch concepts to Sony's SmartBand, we can

expect a detailed documentation of a digitised record of our lives - essentially to be quantified into measurable data points - this is the quantified self.

In this respect, doctors and patients are uniting in many western nations to use this data to predict health patterns, early warning systems for diseases and even behavioural therapy which can promote a healthier lifestyle. Programs developed at Carnegie Mellon University are already using smartphone activity and logged data to predict depression in people. Other more commercial products like the Digifit and MyFitnessPal apps record exercise and dietary data and use social media networking to make healthcare activities motivated through social network competition strategies. These systems make use of game like systems where people can compete with their friends on social media over XP points, badges and achievements through real world activities.

And even beyond the individual, cities and governments can use the anonymous data sets provided by their citizens to improve urban planning, environmental recovery and public services. A key example is the Livelihoods Project which uses data gathered from tweets, check-ins on services like Foursquare and Instagram to generate a dynamic geo-tagging model which can shed light on how local demographics, public service distribution, economic growth and urban planning activities are influencing the lives of people. This form of two way data sharing, where planners can take advantage to monitor large scale human behaviour to shape a more efficient environment, and individuals can take advantage of environmental data to organise their own

lives is critical towards the efficient use of resources in the future.

Promoters of the "quantified self" movement advocate the use of these vast individually specific data sets towards predicting not only human health concerns through the power of predictive algorithms but also of easing how humans interact with their environment such as through effective traffic management or prediction of localised illnesses. As humans allow for greater intrusion of technology into their personal lives through sensors and tracking hardware, the need for software that can implement that data for more than corporate CRM and marketing is critically needed. From personalised medicine to nation wide planning, the quantified self movement and predictive analysis is intended towards making big data a publicly useful source of information, especially to answer questions that can make life better for everyone.



Quantified self data is currently used to motivate healthier habits by making exercise a competitive game across a social network.

Towards New Frontiers

All innovation have arisen to face new challenges and break unimagined barriers. Today's innovations will sustain the future and allow humanity to flourish as modern obstacles like global shortages in fuel, food and health care become our most pressing concerns. So as we turn to the next set of challenges in scientific and technological innovation that will determine our destiny it is important to remember that no aspect of human imagination is more intense than that which yearns to further its own existence. And when it comes to the next generation of technology, existence is exactly what is at stake.



Google now owns SCHAFT

The best bot built at the DARPA Robotics Challenge is now to be funded by Google, its new owner <http://dgit.in/SCHAFT>



Vicarious raises \$40 Mn

Secretive artificial intelligence firm gets funding from the likes of Mark Zuckerberg, and Elon Musk <http://dgit.in/Vic40Mil>

"The robots we're all worried about may be us!"

Asst. Professor James McLurkin from Rice University is a lifelong robotics fan. We had a great conversation with him last month on his maiden trip to India on all things robotics related. What's more, we also tickled his fancy and got his thoughts on the future of voice-based assistants, machine learning, the possibility of a humanoid butler walking around in our homes, and the moral implications of creating sentient AI and robots. Excerpts from our exclusive interview:

Jayesh Shinde

jayesh.shinde@thinkdigit.com

What sparked your interest in robotics?

JM: For me, robotics is the culmination of a lifetime spent building better toys. When I was younger, cardboard boxes, model trains, and as I got older radio-controlled cars, video games, and lots of LEGO. Ultimately, if you put that much technology into a 15-16 year old, you move towards building robots – that was the most natural inclination for me. I still like to think myself as building better toys that everyone can use. So, robots for everybody, yes.

What sort of robots do you build and study?

JM: Right now, we have four different robots split into two different types. This particular robot was built at Rice University – in collaboration with our students – and the goal of this robot is to have research grade features and qualities but built as cheap as possible to minimize costs. The ultimate goal of my work is to understand distributed algorithms for multi-robot systems. So if somebody gave me 10,000 robots, I need to figure out how to put them together, how to program them, how to get them to do tasks as a group.

And we see examples of this all over. Ants, bees, termites, wasps, all of these insect communities do very complicated tasks as groups, that individuals can't do by themselves. We don't want to copy nature, because nature's far too sophisticated for us to copy, but understand the algorithmic implications of these tasks – what's the



James McLurkin, Asst. Professor, Dept. of Computer Science, Rice University

input, what's the software, and what's the output of these tasks that nature runs, so to speak. There are various things that insects do in their lifetime, which are useful to us if we get robots to do them, too.

How will your technology, research and robots be implemented in the real-world?

JM: As robots become universal, more practical, cheap and accessible, it will be uncommon to see individual robots working on a task and groups of robots will be common. I want to take that concept to the extreme where I'm not worried about 10-20 robots but 10,000-20,000 robots. Enough robots to build buildings, to reclaim land, to search the oceans for the giant squid and other unexplored creatures. Right now we have two robots on

Mars, what if we had 2,000? We could definitely search the planet far more efficiently.

Do you think there's a lack of awareness of the impact of robots on our lives among the general public?

JM: We as humans have two views of robots: the classic view concerning the robot butler and then we have the giant killer robots (Terminator bots). Most of us won't see either of those possibilities for a very long time, and hopefully we'll never get to the giant killer robot stage. But we're going to see stuff like Google's robot cars, which's a hot topic right now, and this is a problem we'll see getting solved within our lifetime (of a self-driving car). But robots are all around us, in a way. I flew here in what's essentially a very large robot called a 777, my dishwasher is robotic. So that inherent need to sense, compute, act in the physical world without human intervention is one of the keys to robotics.

The other area where we're working on actively as a community is artificial intelligence (AI). In the example of Google's self-driving car, there are basic things that the car needs to understand, but it doesn't need to be very smart. It does need to be careful and good at driving, but it doesn't need to be creative, draw inferences from experiences that are new and novel. These are things that we just don't know how to do yet. The type of intelligence we will be able to achieve is one that's given a large amount of data, and analysing that data to find the best possible solution to a problem. But there's this whole other aspect of intel-



Malware costs COs \$491Bn

New study says malware related issues due to pirated software could cost companies \$491 Billion dollars <http://dgit.in/MalwareMoney>



NASA to capture an asteroid

The firm has unveiled a plan to capture an asteroid and then bring it back to earth for research <http://dgit.in/NASARock>

Tomorrow's tech

ligence which is new thoughts, new ideas, creativity, etc. These are things that we don't even understand fully among us humans yet, much less how to get that into a robot.

1 Do you think there's a lack of participation when it comes to academic research concerning the field of robotics? Not enough students interested in robotics?

JM: When it comes to academic research, I see robotics as a good way to attract students to computer sciences, mechanical engineering, electrical engineering, or technology in general. There aren't as many people as I'd have liked, but the number of students taking robotics is increasing. What excites me the most right now is the Maker Movement, where there's this huge DIY resurgence, which is helping the robotics cause. When I started teaching, I'd get students who didn't know how to use a screwdriver, but now I work with students who tell me that the chips we're working with in the labs are out of date. This is very encouraging from the academics perspective, to see that cultural shift that's making it cool to do technology. Technical interest in the community at large is also going up which is an encouraging trend. It's a very exciting time in the field of robotics right now.

1 What's your impression of Indian students?

JM: I'm biased because the students I meet are always the top students from India. I'm always impressed with the Indian students I get to interact with. My perception of the culture in Asia, India in particular, is that education's respected here. There's much more desire to learn, and the social costs of being interested in technology are lower, and the possibility of being teased and ridiculed in the locker room for playing with robots or video games or studying maths is still a problem in the States. The choices faced by kids when they reach middle-school at the age of 15 or 16 years, deciding whether to do something they enjoy (which is building mechanical robots, studying software, or electronics) or do something to look cool. Cool wins more than it ought to right now. We want to tell students about Geek Chic – that you can do both. You can

be cool, you can do technology, and the two things don't need to be mutually exclusive.

1 The digital age has evolved to include previously off-the-grid machines. How do you see the field of robotics or AI adjusting to this shifting landscape?

JM: The pervasiveness of technology, with smart machines, and the internet of things, is definitely advancing rapidly. The simultaneous growth of machine learning (which is different from AI) and predictive analysis of behaviour where the computer can look at what you've been doing and take a good guess of what you'll be doing next is already a reality -- in some cases like Amazon's and online music streaming services' recommendation engines, for e.g. We will see this behaviour increasingly and we might not even notice it. The phones will get smarter, cars will get smarter, your refrigerator will send you an email when you're running short of milk,

that are going to take over the world, you can't do that if you trip over your shoelaces.

1 How has sci-fi influenced the field of robotics and AI?

JM: So there's sci-fi and there's science reality, and they both advise each other at some level. Where science fiction inspires people, wakes them up when they're 10-11 and they get old and they realize how hard it is. It's still fun, but you realize how daunting the technical challenges are. As an inspiration, a well-informed sci-fi can be really very impressive in terms of taking things forward 50-60 or a 100 years forward. This is where Asimov is a true inspiration. In 2014, his writings feel a bit dated because of the way they're talking and doing things, but even after 60 years his logic, his principles make sense... man, he nailed so many things.

So yes, sci-fi inspires us, and the truly good sci-fi leads us to want to strive for



"We want to tell students about Geek Chic – that you can do both. You can be cool, you can do technology, and the two things don't need to be mutually exclusive."

and these things will happen bit by bit. The first smart refrigerator will be heralded as a breakthrough, as RFID tagged food becomes the norm in our house, and there will be a few media stories around it, and it will fade. We'll just get used to it.

1 But is there an inherent danger of things getting out of hands and robots taking over the world?

JM: There are two reasons I'm not worried about that possibility. The first reason is a philosophical argument: If we create this thing, a sentient, self-aware robot, why would it want to exterminate its creators? That's not logical, with an assumption that we create something that's compassionate and caring, something that isn't sadistic in nature. The second reason why I'm not worried about the possibility is because there are currently no robots that can tie shoe laces, there are no robots who can safely cross streets. If we're going to have robots

more. Science reality is what we have in the present, the slow careful work doing basic research, figuring out good applications, and applying that to building products that we can actually use. And each of these phases have separate challenges. The basic research is what I'm focusing now as a professor, but with an eye towards products that people can use, particularly towards education. Advising the research about the systems that have been doing it for 160 million years -- ants and bees are about that old. The algorithmic solutions that nature's devised to these things are critical to our understanding. We know ants and bees are very successful in how they forage, reproduce, and get around the world. We just need to figure out a way to translate all of that into robots.

For Mr. McLurkin's biography, visit <http://dgit.in/ljqukQY>. Also, don't miss to catch the detailed version of this interview at: <http://dgit.in/JamesMcLurkin>



Oculus Rift dev kit 2

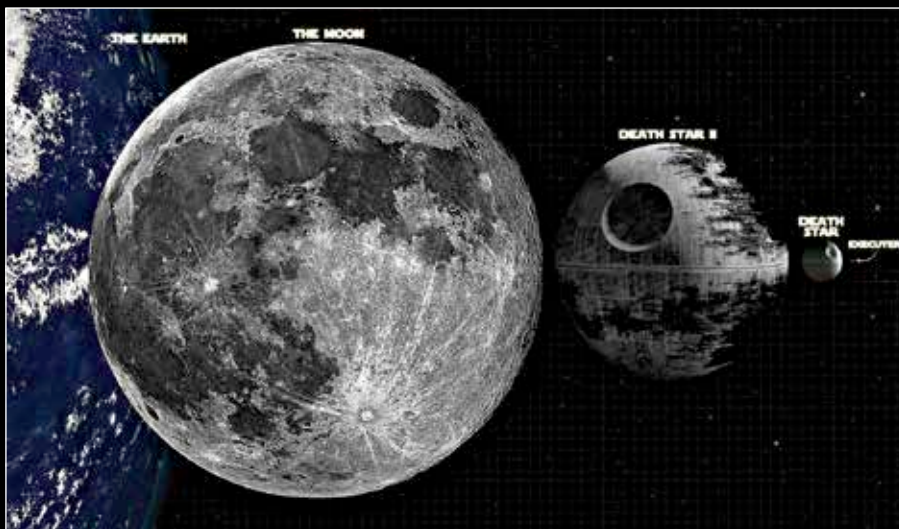
Makers of the Oculus Rift virtual reality headset unveiled a newer version of the developer kit <http://dgit.in/OcuRift2>



New gaming laptops

Gigabyte recently released its new gaming laptops powered by Nvidia GTX 800M series graphics <http://dgit.in/GTX800m>

BATTLEFIELD SPACE: The Realities of Wars on the Next Frontier



Matter comes in many forms but nothing is more exciting than the exotic kind. We explain why exotic matter has gripped the scientific imagination despite its theoretical strangeness

Samir Alam
readersletters@thinkdigit.com

"War. War never changes."
– **Fallout 3, Bethesda Softworks**

There are three places on Earth that can erupt into fiery chaos at a moments notice. The Indo-Pak border, the Straits of Taiwan and the Gaza Strip, all of these places are strife with conflict between well armed, highly motivated and extremely volatile people. Here, a shot over the bow can result in nuclear missiles flying over head.

It is ironic then that in the trying times of our desperate struggle that our better angels whisper brilliance in to our minds - from the harnessing of fire for our war against nature to the creation of nuclear technology for our war against each other. Technology and innovation have always led humanity to walk a fine line between genius and insanity, and now the future of war stands at the pinnacle of a new frontier on which to wage its terrible fate - outer space.

It's important to note however that as we discuss the possibilities of practical space warfare we have to be cautious and stay within realistic possibilities. As Hilbert's paradox of the Grand Hotel explains in theoretical inventions, the infinite range of technological and tactical outcomes are too varied for us to even consider. It's something we have all experienced as children - "I double dare you! - I triple dare you! - I dare you times infinity! - I dare you times infinity plus one!" Every grand theoretical invention that we conjure up has an equally powerful and plausible counter weapon, every tactic has a counter tactic

and the most powerful weapon has a neutraliser and a successor.

So how far are we from that reality? How will it exhibit itself? And will we survive it? We take a look at these questions based on the of facts as they exist today while we continue to hope that evolve as only fiction.

Separating Reality from Fiction

In 2012 a group of over 25,000 petitioners in the United States demanded that the government build a gigantic moon sized battle-station in space - a Death Star. Of course, this demand was dismissed by the American White House citing two reason - the 852 quadrillion dollar expense and the fact that their government "did not support blowing up planets". Despite the amusing nature of this real world incident it goes to highlight the practical realities and limitations of space warfare.

Since the 1970s in the critical moments of the Cold War, the United States and the Soviet Union have been looking at outer space as the most suitable place for modern war to take place. The exponential research and development in long distance inter continental ballistic missiles or ICBMs have led to remarkable weapons in support of those goals.

Long distance nuclear-kinetic weapons such as Russia's R-36M a.k.a. SS-18 Satan which has a range of 16,000 kilometres, enough range to target cities like Los Angeles, New York, Washington DC, all of South America and pretty much anywhere on the surface on the planet in less than 30 minutes of its launch from New Delhi. The SS-18 Satan is a precise device of mass destruction with a velocity of 28,800 km/h capable of deploying 10 Multiple Independent Reentry Vehicles (MIRV) warheads of up to 750 kilotonnes of nuclear yield each. To put it in perspective, that is a nuclear yield 375 times



Top paid gamers of all time

This list of the top 10 highest paid pro gamers of all time will make you think of switching your job: <http://dgit.in/ProGamingPays>



Mantle for CryEngine

AMD is partnering with CryTek to bring AMD's Mantle API to CryEngine. Read more here: <http://dgit.in/MantleDontCry>

Space Age



The R-36M is already being outmoded by R&D in long-range missiles by countries like the U.S.

that of "Fat Man" - the bomb which was dropped on Nagasaki in August 1945, which means that a single warhead on a single missile is capable of generating over 5 million human casualties at its point of impact in a country like India.

The frightening nature of this destruction makes space all the more alluring for a war destination. And to that end the innovations in warfare have progressed with the same belief. Technologies that can support the advantages of a space assault on terrestrial nations as well as the potential for minimising collateral damage, outer space may in fact be the best place for war. And it presents its own set of challenges.

War Is All Kinds Of THEL

Early on during the Cold War military strategists realized that nuclear weapons in space were not a good idea. The nuclear fall out combined with the unpredictable debris showers towards the surface of the Earth would leave every aggressor nation at risk of unsuspecting damage. To compensate for this side-effect more powerful conventional weaponry or new innovations in weapons design would be needed. The foremost of these designs for space based weapon inevitably came from the imagination of science fiction - lasers, Advanced Tactical Lasers to be more precise.

An invention of the Boeing Company, the Advanced Tactical Laser system was commissioned by the United States Special Operations Command in 2002. Within six years the Boeing Company delivered the weapons strapped to a C-130H Hercules transport aircraft, and proved capable of defeating a ground based target by the end of 2009. The silent and invisible laser possess a 100 kilo-

watt capacity sufficient to slice a tank shell with ease. Other similar direct energy weapon in service and development are the High Energy Liquid Area Defense System, Tactical High Energy Laser (THEL) or the Nautilus laser system and the Mobile-THEL have all proven successful in neutralizing incoming mobile targets such as rockets and artillery shells.

If we theorise their use in outer space we can easily see how their strengths would play off against their disadvantages. The notorious

over-heating of laser weapons is only limited by their heat-transfer support systems which would allow them to stay cooled. It is easy to imagine a space-based improvisation that would use the minus 270.45 Celsius temperature of space to cool the weapons allowing for near continuous usage. The Mobile-THEL laser system is designed for quick bursts of attacks to minimise its heating but in the sub-zero temperatures of space it could potentially operate continuously.

Velocitas Eradico - I, Speed, Destroyer of Worlds

An alternative to the complicated and difficult to construct direct energy weapons is the far simpler development of non-combustible high velocity inert projectile launch-



The MIRV weapon is seen executed in TV shows like Battlestar Galactica to great accuracy.

ers - railguns. The simplicity of the railgun concept is built into its physics, which is the acceleration of projectiles at supersonic velocities using electromagnetic propulsion. By rapidly accelerating a projectile to supersonic speeds we no longer depend on chemical propellants like gunpowder which wouldn't perform effectively in the vacuum of space.

The current design of railguns only requires a power supply of pulsed direct

current and a heat resistant material in its armature build. With these components military railguns do not even need explosive rounds as the kinetic energy of these projectiles is sufficient to cause considerable damage. The first weaponized railgun is already in production and is known as the General Atomics Blitzer system. This weapon launches discarded round casings of conventional artillery at velocities of Mach 5 (1600m/sec). The power and range of this weapon is proven to be significant as in tests the projectile continued to travel nearly 7 kilometres after having penetrated its 1/8 inch steel plate target.

In another test by the United States Navy in 2008, a 3.2kg projectile was launched at velocities of nearly Mach 7 producing 9.2 million joules of kinetic energy worth of damage. By using the kinetic energy of such projectile weapons in the relative gravity-free arena of space the potential for damage is equivalent to TNT explosive charges of the same mass. And as these types of weapons achieve greater velocity, their destructive capability becomes all the more greater.

Starfighters of the Future

No discussion of space war can be complete without talking about warships. Once it was understood that space in the next frontier, nations the world over have developed



The weaponized laser already in production has surprising range and power for its size, promising more in future versions.

their own space vehicles. Fortunately, the development of spacecrafts has been driven by scientific and exploratory ideals. But with the creation of the X-37B Orbital Test Vehicle (OTV) this fact might very well change.

The Boeing X-37 series of spacecrafts are designed primarily to serve as reusable unmanned space vehicles intended to replace the Space Shuttle as the primary means of carrying out orbital activities. The X-37B va-



Dark Souls returns

One of the most awaited games around: Check out the Dark Souls 2 review online <http://dgit.in/1psouvE>



Mini GPUs spotted

Small sized graphics cards from Galaxy have been seen online. Galaxy aims to release such cards for the ITX form factor. <http://dgit.in/MiniGalaxy>



A naval stealth ship equipped with a rail gun and advanced warning systems

riety of this design however is speculated to be capable of so much more than the simple duties we have witnessed the Space Shuttle carry out.

The product of a clandestine 10 year project by Boeing's Phantom Works black projects division, the X-37B is specially designed for the United States Air Force with assistance from the Defense Advanced Research Projects Agency and NASA. The offshoot of the Boeing X-37 design it was merged with DARPA's Falcon Hypersonic Technology Vehicle (HTV-2) which was specifically designed to offer operational results of rapid attacks and super fast manoeuvrability in flight making it a formidable spacecraft of aggressive engagement. But all official statements on the issue have obviously been to downplay its military potential.

The spacecraft has already been embroiled in accusations that it is used as a spy satellite and weapons delivery vehicle, specifically having been used to spy on China's Tiangong-1 space station module. And even as the Pentagon and the United States government dismiss these allegations it's harder to argue that the craft is incapable of such feats. And considering the nature of the global arms race it is very likely that countries like Russia and China are equally invested in developing tactical spacecrafts of their own. But so far there has been little visible evidence from these opaque nations.

Reality Bites and then Booms

Despite the cutting edge developments in warfare, weapons and technologies, there are some inescapable realities that today's militaries can't escape. The greatest obstacle to waging war in space isn't in

technical problems like weapons overheating or targeting accuracy but the fact that it is unlike anything, anyone, anywhere has ever experienced. And despite millions of people playing billions of games that simulate the nature of space based warfare, the reality isn't as convenient as plasma shields and photon torpedoes.

In space the laws of physics work at their purest - inertial momentum makes every fragment and debris a potential weapon of mass destruction, devices that could divert asteroids are a more likely reality than weapons systems capable of dealing with the multi-axis space environment which demands superfast responses to unpredictable



The next generation of fighter spacecraft is already here and its remote controlled. We'd buy that for a dollar.

spatial movements. And in addition to these basic facts, the vastness of space allows for no stealth in executing attacks or hiding from them.

As two armada's face off in orbit over a planet or far off in the nothingness of the void, even the most prototyped technologies of today wouldn't stand a chance when developed to their full potential. Missiles and lasers launched would have to work with super-fast predictive systems which inform the warhead of the target location. Over the great distances between the warring fleets, even the potentially superfast microseconds in laser fire would leave ample time for spacecrafts to correct for evasive manoeuvres. And even though a close range direct strike would prove fatal for any target, it would be equally deadly for the victor as a counter strike would have little chance of missing them.

We are at the very least two generations of innovation from any feasible form of space militarisation. At its current stage, we are capable of only launching space-to-earth attacks and vice versa. The various technological innovations necessary for zero-G combat involving futuristic fighter jets, automated unmanned space based high-yield weapons, as well as targeting munition systems that can deal with the physics of space navigation are still a long way off. And in many respects, the only reason to create those specific technologies is to wage war.

In Space, No One Can Hear You Scream

For most of us today the shadow of war is far from our sights. But that doesn't mean it isn't there, faded in the brightness of our optimism. And as recent events in the Ukraine have shown, old animosities can find easy provocation, throwing even the most progressive nations into old, fearful patterns. The only things that have held us back are international treaties like Outer Space Treaty and the Space Preservation Treaty that remind us of our nobler intentions. But looking towards outer space the grim reality is even more prevalent in our imaginations, through television and movies, novels and stories, a part of us already accepts the inevitability of war over the Earth, far above the surface in the infinite coldness of space, where truly no one can hear you scream. 

digit KILLER RIGS

Everything you'll ever need to build your own PC. Whatever your budget.

■ Basic rig = ₹25,626 ■ HTPC = ₹30,145 ■ Entry-level gaming = ₹42,985 ■ Mid-range gaming = ₹68,380 ■ Ultra high-end = ₹2,65,301 ■ Optional Accessories = ₹42,081

BASIC RIG

Processor	Intel Pentium G2020	3,450
Motherboard	Gigabyte GA-H61M-D2H	2,999
RAM	Corsair 2GB DDR3 1333MHz	1,600
HDD	Toshiba 500GB	3,150
Monitor	AOC E2043FSK	6,570
Graphics Card	None	0
Cabinet	NZXT Gamma	2,490
PSU	Corsair VS450	2,268
Speaker (2.1)	Creative SBS A120	1,550
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	Amkette Ash Black (Bundle)	500
Keyboard	Amkette Ash Black (Bundle)	0
Sound Card	None	0
Total		₹25,626

HTPC

Processor	AMD A8-5600K	6,955
Motherboard	MSI FM2-A75MA-P33	4,423
RAM	Kingston HyperX Blu DDR3 4 GB	3,900
HDD	Western Digital WD20EZRX 2TB	6,275
Monitor	None (your TV)	0
Graphics Card	None (HD7560D onboard)	0
Cabinet	Cooler Master Elite 120 Advanced	2,977
PSU	Cooler Master Thunder 450W	2,696
Speaker	None	0
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	Microsoft Desktop 2000 wireless combo	1,870
Keyboard	Bundled	0
Sound Card	None	0
Total		₹30,145

ENTRY-LEVEL GAMING

Processor	AMD A10-6800K	9,850
Motherboard	ASUS F2A85-M-LE	6,200
RAM	G-skill F3-10600CL9S-4GBNT	3,000
HDD	Seagate Barracuda 1TB	4,000
Monitor	AOC I2251FWE IPS	8,350
Graphics Card	None	0
Cabinet	NZXT Gamma	2,490
PSU	Cooler Master Thunder 450W	2,656
Speaker	F&D F680	4,890
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	Amkette Ash Black (Bundle)	0
Keyboard	Amkette Ash Black (Bundle)	500
Sound Card	None	0
Total		₹42,985

MID-RANGE GAMING

Processor	Intel Core i5-3470	13,200
Motherboard	Gigabyte GA-B75M-D3H	4,641
RAM	Kingston HyperX 8GB (KH1600C10D3B1/8G)	5,200
HDD	Toshiba 1TB DT01ACA100	4,390
Monitor	BenQ G2420 HD	10,500
Graphics Card	Nvidia GTX 750 Ti	12,000
Cabinet	Antec One - S3	3,260
PSU	Seasonic S12II 620 Watts	6,150
Speaker	F&D F680	4,890
Optical Drive	Samsung SH-224DB/IDDS	1,049
Mouse	CM Storm Devastator (Bundle)	3,100
Keyboard	CM Storm Devastator (Bundle)	0
Sound Card	None	0
Total		₹68,380

ULTRA HIGH-END GAMING

Processor	Intel Core i7-4770K	23,200
Motherboard	ASRock Z87 Extreme4	13,356
RAM	ADATA XPG 2 x 4GB (2 Kits)	16,790
HDD	WD WD30EZRX 3TB + Samsung 840 Pro 256 GB	22,984
Monitor	Dell U2713HM	51,000
Graphics Card	ZOTAC GTX 780 Ti	55,700
Cabinet	NZXT Phantom 820	16,836
PSU	Cooler Master V1000	14,811
Speaker	Logitech Z906 5.1	23,525
Optical Drive	LG Blu-ray WH16NS40 RW	6,099
Mouse	Roccat Kone XTD	5,200
Keyboard	Ttesports Poseidon	5,300
Sound Card	ASUS Xonar Phoebe	10,500
Total		₹2,65,301

OPTIONAL ACCESSORIES

Surge Protector	Belkin 8 Socket Surge Protector	1,044
Controller	Xbox 360 Controller (wired)	2,199
UPS	APC 1000VA - BR1000G-IN	8,330
Webcam	Logitech HD Pro C920	6,820
Headphones	Sennheiser PX 100-II	3,570
Mousepad	Roccat Taito	625
Wireless Router	TP-LINK TD-W8968	2,349
Sound Card	ASUS Xonar Essence STX	9,540
External DVD-Writer	Lite-On eUAU108	1,800
Thermal Paste	Arctic Silver 5 (3.5 grams)	600
CPU Cooler	Cooler Master Hyper 212X	2,649
Fan Controller	Deepcool Rock Master V3	1,695
Case Fan	Corsair AF120	860
Total		₹42,081

Price watch

PnS cameras, cabinets, portable hard drives and gaming keyboards get featured this month

**Mole in Microsoft?**

An ex-employee of Microsoft was arrested recently for leaking Windows 8 trade secrets. More here: <http://dgit.in/TraitorAlert>

A little too early for 4K

It may be all the rage at the moment, but now isn't the right time.

Agent 001

agent001@thinkdgit.com

The display segment is all the rage in 2014, we've got a lot of new terms being thrown around with 4K and UHD pretty much dominating the discussion. These two terms are used interchangeably but they really aren't the same.

Let's look into the whole high definition terminology. The current mainstream standard is 1920x1080 which is also termed as Full HD. Depending on the actual signal this may be 1080p or 1080i but let's put that one away for another day. The next step in display panel resolution is UHD or Ultra High Definition. This is achieved by doubling the horizontal and vertical pixel count of Full HD to get 3840x2160 resolution. 4K on the other hand stands for 4096x2160 which you can see is slightly greater than UHD. 4K operates on an aspect ratio of 1.9:1 while UHD has an aspect ratio of 1.78:1. Basically 4K is a production standard while UHD is a consumer format. If you were to view 4K content on a UHD panel then you'd see two

black vertical bars along either side of the screen. Manufacturers call UHD as 4K just because it sounds a bit snazzy and that's about it.

Pushing four times the pixels requires a heck lot more graphical processing power and current cards are already capable of the same. It's been quite some time since multi-display technologies have hit the market but the implementation is a bit different. There is a limitation on HDMI which prevents it from pushing UHD resolution on a single HDMI port. But multi-display is all about using each port for just one Full HD display.

Mobiles have started using beefier SoCs which can render UHD resolution, the Qualcomm Snapdragon 800 is one such chipset that has already made its presence felt in some flagships. If that wasn't enough then there are TV channels that have started projecting in 8K resolution.

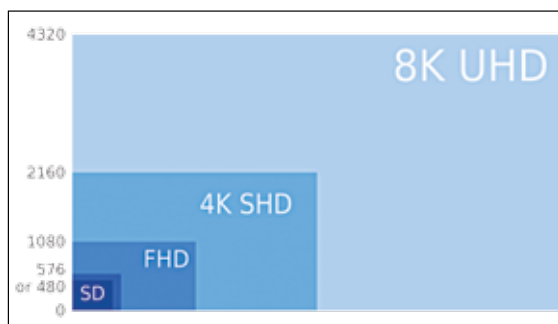
And by 8K I mean QUHD (Quad Ultra HD) which requires much higher bandwidth.

So with all the UHD capable devices around us and with the availability of content in UHD format, wouldn't it be time to move to a UHD monitor? Nope, and here's why. All 4K (that's what manufacturer's call UHD) monitors out there are using TN

(twisted nematic) panels. These only reproduce the image properly for the viewer sitting right in front of the monitor. Anyone sitting at an angle is going to experience a washed out display with a darkened overall tone. TN is great for fast response time but offers not so great colour reproduction. IPS and VA panels in UHD monitors are a while away.

If you've got any intention of gaming on a UHD monitor then you're going to be most disappointed. Firstly, the GPUs can only push UHD resolution at 30Hz over HDMI, this means that you'll be stuck with crappy FPS which would likely get capped at around 30 FPS given that a single GPU is going to find it ridiculously stressful to push UHD at max configuration. On top of that the sub 60Hz panel will worsen your overall experience. You can play at 1080p on your UHD monitor at 60Hz. However, you'd smack yourself in the head for buying the UHD monitor if you were never going to be able to play games at UHD resolution. Also Full HD looks really worse on an UHD monitor since each pixel gets stretched to cover 4 square pixels.

So the way manufacturers have gone about fixing this is by emulating one panel to seem like two. Hence, by using MST one display panel is made to seem like two on the DisplayPort. This allows UHD @60Hz on current "4K" panels, Dell's UP3214Q uses this method to get UHD onto an 32-inch IPS panel for a good \$3,500. So at the end of the day you either plunk down a ridiculous amount of money to get a proper UHD panel or you can spend close to \$800 and get TN panels running at 30Hz. I'd say give it a year or two, HDMI 2.0 which is capable of carrying UHD signals was released in September last year and it'll be some time before that becomes mainstream. That's when you should go in for a UHD monitor and a good graphics card too. **[1]**

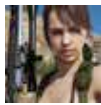


4K and UHD aren't the same



Diablo 3 Trailer

Check out the trailer of Diablo 3 expansion: Reaper of Souls
<http://dgit.in/d14b1o>



Metal Gear Solid 5

Read the Metal Gear: Solid 5 review if you've been waiting for the game like everyone else
<http://dgit.in/mgs5gzs>

Agent 001

Laptop under ₹40k

I want to buy a laptop under ₹40,000. I don't have any brand preferences but need something nice and well built to carry around to college. I'm an engineering student and will use the laptop predominantly for working on software like MATLAB, and some others. That doesn't mean it shouldn't be able to play the occasional movie or entertainment session. Portability isn't a concern for me, please recommend the best machine in the budget.

—Sayali S.

A You couldn't have picked a better time to buy laptops, because of two things happening in the market. Inventories of older generation (Intel Core 3rd gen and older) of machines are almost in their final few weeks before getting exhausted,



The time is nigh to buy laptops

ensuring you get a very good deal on a brand new older generation laptop. The second thing that's happening is that almost all OEMs have launched laptops with the latest hardware in their respective portfolio -- fastest CPUs, greatest graphics, and so on. So if you have money to throw at them, you will get a very good machine in either scenario.

You can take a look at Dell's Inspiron 15R laptop selling at ₹38k on Dell's website, and also Acer's E1-570G (<http://dgit.in/1dphNL5>) is a very good option to consider at your budget. However, if you're looking at slightly lower price ranges, do also consider the HP Pavilion 15-n205TX and the new Lenovo IdeaPad G510. These are one of the best laptops to buy in the market at your budget, and they should be able to handle your tasks -- both educa-

tional and entertainment related -- with relative ease.

We would recommend you purchase a laptop based on Intel's latest 4th generation of Core processors, because their power efficiency is significantly better than the 3rd generation chips, as a result this will have a significantly positive impact on your laptop's battery consumption.

Stock trading computer

My uncle wants to start online stock trading at his home. But he's a bit tight on budget, so can you please recommend a sturdy but cheap pc configuration for him? He'd have to sit for 8 hrs at his PC. I read somewhere that at least 4GB of RAM is required for the stock software. Is that true? Thanks in advance.

—Shubham

A Here is what trading computers need:

1. **A good processor:** This can be anything from an Intel i3 to the latest i7. The reason being that your OS and the amount of software that you need to have running simultaneously eat up a lot of resources.
2. **A multi-monitor setup:** Traders like to have multiple stocks on their display screens all the time and for this a multi-monitor setup is essential. This can be achieved by a simple graphics card that specializes in multi-monitor setup. This way the workload on the CPU increases which might in turn affect the software that you need to run. The other option is to invest in a moderately powered graphics card and then run each screen at a moderate resolution.
3. **The network connection:** In order to view what is happening on the stock market floor from the comfort of your home you need to have a low latency internet connection. And to further avoid any latency issues on your side you need to have a NIC that has its own processor like the Killer E2205, motherboards with these chips are a bit expensive.
4. **Memory:** Finally, to supplement your processor you also need a dual channel memory kit with a good bus speed.



Avoid clutter with a multi-monitor setup

4GB is a good start, but greater the RAM is generally better.

If you are starting out then you need not worry about these things, however, as you get better and when every millisecond starts to matter your hardware will need to cope with demand. So you can make do with the basic rig that we recommend in the killer rigs section. However, if you could write in to us with all the details of all the software you'll be running then we might be able to help you out better.


Tablet for app testing

I want to buy an Android-powered tablet under ₹10-12k. Which tablet is best? I want to use it for app development.

—Manoj Joshi



Nexus 7 - Economical and powerful

A If you're focusing on developing Android alone, there's no better environment than to test drive your apps on vanilla Android, devoid of skins present on OEM devices. For this alone, we would highly recommend picking up the last generation of Nexus 7 tablet, which is currently selling at ₹8k on some online shopping portals. 

**Crabster underwater robot**

The Crabster CR200 is a crab-like autonomous underwater drone being made to scuttle the ocean floor for treasure. <http://digit.in/Crabster>

**Photowall for Chromecast**

Photowall is an app from Google for iOS devices that lets users doodle on pictures and beam them to TVs <http://digit.in/PhotoCast>

SPEND SMART

We list out the hottest selling gadgets and gizmos across different categories from PnS cameras to gaming keyboards.



PnS CAMERA

Brand	Model	Screen size	Sensor size	Resolution	Sensor type	Optical zoom	Max ISO	Price (₹)
Canon	Powershot SX50 HS	2.8 inch	1/2.3 inch	12.1 MP	CMOS	50x	6400	25,400
Olympus	Stylus VG-165	2.7 inch	1/2.3 inch	14 MP	CCD	5x	1600	4,241
Pentax	Efina	2.5 inch	1/2.3 inch	14 MP	CCD	5x	1600	3,785
Panasonic	Lumix DMC-TZ25	3 inch	1/2.3 inch	12.1 MP	MOS	16x	6400	11,500
Fujifilm	JX500	2.7 inch	1/2.3 inch	14 MP	CCD	5x	3200	4,999
Casio	Exilim EX-H5	2.7 inch	1/2.3 inch	12.1 MP	CCD	10x	3200	7,795
Sony	DSC-RX100	3 inch	1 inch	20.2 MP	Exmor R CMOS	3.6x	12800	33,899
Nikon	Coolpix P530	3 inch	1/2.3 inch	16.1 MP	CMOS	42x	6400	19,950
Kodak	Pixpro AZ361	4 inch	1/2.3 inch	16 MP	CCD	36x	3200	16,400
Samsung	ES95	2.7 inch	1/2.3 inch	16.1 MP	CCD	5x	3200	5,500
Canon	Powershot A1400	2.7 inch	1/2.3 inch	16 MP	CCD	5x	1600	5,999
Olympus	VG-170	3 inch	1/2.3 inch	14 MP	CCD	5x	1600	5,299
Panasonic	Lumix DMC-FZ200	3 inch	1/2.3 inch	12.1 MP	High Sensitivity MOS	24x	6400	33,900
Fujifilm	X-S1	3 inch	2/3 inch	12 MP	EXR CMOS	26x	12800	45,999
Sony	Cybershot DSC-W730	2.7 inch	1/2.3 inch	16.1 MP	CCD	8x	3200	7,730
Nikon	Coolpix S2700	2.7 inch	1/2.3 inch	16 MP	CCD	6x	3200	5,593
Kodak	M522	2.7 inch	7.7 mm	14.2 MP	CCD	4x	1000	5,999
Samsung	GC100	4.77 inch	1/2.3 inch	16.3 MP	BSI CMOS	20.9x	3200	22,500



CABINETS

Brand	Model	Form factors supported	Front USB 3.0	Fans mounts	2x 120mm radiator mount	Expansion slots	Cabinet depth	Price (₹)
Thermaltake	Level 10 GT Snow	mini-ITX, Micro ATX, ATX, EATX	Y	5	Y	8	23.2 inch	20,255
Thermaltake	Level 10 GTS	mini-ITX, Micro ATX, ATX	Y	5	Y	7	20.1 inch	9,000
Xigmatek	Assassin	mini-ITX, Micro ATX, ATX, EATX	Y	8	Y	8	19.6 inch	6,525
Xigmatek	Recon	mini-ITX, Micro ATX, ATX	Y	2	Y	7	15.6 inch	2,410
Corsair	Obsidian 900D	mini-ITX, Micro ATX, ATX, EATX, HPTX	Y	15	Y	10	25.6 inch	28,415
Corsair	Carbide 300R	mini-ITX, Micro ATX, ATX	Y	7	Y	7	18.7 inch	5,100
Corsair	Vengeance C70	mini-ITX, Micro ATX, ATX	Y	9	Y	8	20.9 inch	9,585
Cooler Master	Cosmos II	mini-ITX, Micro ATX, ATX, EATX, XL-ATX, SSI CEB, SSI EEB	Y	10	Y	11	26.1 inch	25,120
Cooler Master	HAF912	mini-ITX, Micro ATX, ATX	N	7	Y	8	19.5 inch	5,700
Cooler Master	Elite 344	mini-ITX, Micro ATX	Y	3	N	4	17.1 inch	2,340
Bitfenix	Merc Alpha	mini-ITX, Micro ATX, ATX	N	8	Y	7	19.3 inch	3,470
Bitfenix	Colossus	mini-ITX, Micro ATX, ATX, EATX	Y	4	N	8	22.9 inch	11,405
Antec	One S3	mini-ITX, Micro ATX, ATX	Y	5	N	7	19.2 inch	3,685
Antec	Titan 650	mini-ITX, Micro ATX, ATX, EATX, XL-ATX, SSI CEB, SSI EEB	N	3	N	7	23 inch	6,470
Antec	Twelve Hundred V3	mini-ITX, Micro ATX, ATX	Y	8	Y	7	20.2 inch	13,455



Awesome GoT swag

Game of Thrones fans, get your geek on with 20 amazing new items from the series available for purchase on Etsy. <http://dgit.in/GimmeGoT>



Unreleased Graphics Cards

Check out this list of 10 rare graphics cards that didn't see the light of a retail stores window ever. <http://dgit.in/RareGPUs>

Price Watch



PORTABLE HARD DRIVES

Brand	Model	Interface	Capacity	Warranty	Dimension	RPM	Buffer	Cost/GB (₹)	Price (₹)
ADATA	HV620	USB 3.0	2 TB	3 years	115 x 78 x 21 mm	5400	64 MB	3.32	6,790
ADATA	HV610	USB 3.0	1 TB	3 years	18 x 90 x 115 mm	5400	8 MB	3.70	3,790
Buffalo	MiniStation 500	USB 3.0	500 GB	3 years	82 x 118 x 16 mm	5400	8 MB	8.30	4,250
Buffalo	MiniStation 1TB	USB 3.0	1 TB	3 years	76 x 115 x 14 mm	5400	8 MB	6.78	6,940
Dell	Backup Plus	USB 3.0	1 TB	2 years	123.4 x 81.1 x 14.5 mm	5400	8 MB	3.70	3,799
Hitachi	Touro Pro 1TB	USB 3.0	1 TB	3 years	80 x 126 x 15 mm	7200	32 MB	6.10	6,250
Hitachi	Touro Mobile 500	USB 3.0	500 GB	3 years	0 x 126 x 15 mm	7200	8 MB	5.64	2,890
HP	P2050	USB 3.0	500 GB	2 years	85 x 16 x 120 mm	5400	8 MB	7.48	3,832
ioSafe	Rugged 1TB	2x Firewire 800	1 TB	1 year	27 x 110 x 150 mm	7200	32 MB	18.07	18,500
Lacie	SSD Rugged	USB 3.0	256 GB	2 years	89 x 140 x 24 mm	NA	NA	143.35	36,700
Lacie	Rugged Triple	Firewire 800	500 GB	2 years	90 x 28 x 145 mm	7200	8 MB	17.18	8,799
Samsung	M3 Portable	USB 3.0	1 TB	3 years	82 x 19.6 x 112 mm	5400	8 MB	4.73	4,850
Seagate	Wireless Plus	USB 3.0	1 TB	3 years	27 x 89 x 19.9 mm	5400	8 MB	12.01	12,300
Seagate	Expansion	USB 3.0	500 GB	1 year	15.5 x 81.1 x 122.3 mm	5400	8 MB	7.56	3,875
Silicon Power	Diamond D03	USB 3.0	500 GB	3 years	117.55 x 75.5 x 14 mm	5400	8 MB	10.44	5,350
Sony	External 2 TB	USB 3.0	2 TB	3 years	86 x 21.5 x 126 mm	5400	8 MB	4.80	9,850
Sony	HD-EG5/P	USB 3.0	500 GB	3 years	80 x 16 x 126 mm	5400	8 MB	7.81	3,999
Toshiba	Canvio	USB 2.0	1 TB	3 years	16.5 x 79 x 118.9 mm	5400	8 MB	6.15	6,300
Transcend	StoreJet 25H3	USB 3.0	2 TB	3 years	132 x 81.3 x 20.3 mm	5400	8 MB	4.11	8,425
WD	My Passport	USB 3.0	2 TB	3 years	111 x 82 x 21 mm	5400	8 MB	5.85	12,000
Verbatim	Store 'n' Go	USB 3.0	500 GB	3 years	121 x 80 x 15 mm	5400	8 MB	8.39	4,299



GAMING KEYBOARDS

Brand	Model	USB Ports	Mechanical	nKRO	Macro Keys	Game Mode	Backlit	Palm Rest	Price (₹)
Mad Catz	STRIKE3	0	N	7	12	Y	Y	Y	9,891
Steelseries	Shift	2	N	7	12	N	N	Y	3,397
Tt eSPORTS	Meka G1 Illuminated	2	Y	104 (PS/2)	12	Y	Y	Y	9,900
Tt eSPORTS	Challenger	2	N	Certain combinations	6	N	N	Y	5,900
Roccat	Isku	0	N	Y	5	Y	Y	Y	6,600
Roccat	Ryos MK Pro	2	Y	nKRO	5	N	Y	Y	12,000
Razer	Blackwidow Ultimate	1	Y	10	5	Y	Y	N	10,400
Razer	Deathstalker Ultimate	0	N	10	5	Y	Y	Y	23,300
Logitech	G19s	2	N	6	12	Y	Y	N	14,760
Logitech	G510s	0	N	6	18	Y	Y	N	8,996
Cooler Master	Quick Fire Ultimate	0	Y	nKRO	0	Y	Y	N	9,539
Cooler Master	Quick Fire XT	0	Y	nKRO	0	Y	N	N	4,999
Cooler Master	Quick Fire TK	0	Y	nKRO	0	Y	Y	N	7,999
Steelseries	Merc	2	N	7	34	NA	Y	Y	5,449
Corsair	Vengeance K95	1	Y	nKRO	18	Y	Y	Y	9,697
Corsair	Vengeance K60	1	Y	20 (USB)	0	Y	N	Y	5,900
Corsair	Vengeance K90	1	Y	20 (USB)	18	Y	Y	Y	6,500
Mad Catz	STRIKE7	2	N	7	4	Y	Y	Y	18,127



Career in Database Administration

The explosion of information and the evolution of Big Data has given rise to one of the most lucrative careers in the IT sector. Find out how you can ride this information bandwagon.

Priyanka Mathur

readersletters@thinkdigit.com

‘Big Data’ is such a common buzzword these days, so let us tell you what the fuss is all about. In simple words, Big Data is data that is so diverse, fast changing and substantial that those who work with it must go beyond conventional technologies, skills and infrastructure to use it efficiently.

The boom in the IT industry has come in tandem with an upsurge in the amount of data associated with every organisation. Big Data is this ever-increasing volume and velocity of data that we have to deal with today. Over the past couple of decades, there’s also been a shift in the type of data stored, which now significantly comprises of social media, mobile data and machine data, apart from the run-of-the-mill text and numeric relational data.

According to Kamal Brar, Vice President, APAC at MongoDB (provider of commercial Open Source NoSQL database software), there’s high demand



Big Data getting bigger

for Big Data Management technology in India. The sheer volume of online data has increased in the past decade. In the early 2000s, the size of a traditional relational database was 7 TB. Today, individual users are clocking around 4-5 Petabytes of data.

The world’s information is doubling every two years. In its 2011 report, IDC estimated the size of the digital universe to be 1.8 Zettabytes. According to the study, by 2020 the world would generate 50 times the amount of information and 75 times the number of ‘information containers’ while information managing IT staff will grow by 1.5 times (approx).

The US Bureau of Labor Statistics reports that by 2020, computer jobs around the world are expected to increase at a rate of 14.3 per cent – at a faster rate than any other occupation. Computer occupa-

tions cover a myriad of profiles such as information research scientists, computer system analysts, computer programmers, network system administrators, web developers and database administrators, to name a few.

Background

Today, an increasing number of organisations are gathering data about their consumers and competitors to gain useful market insights that can be translated into a business edge. Big Data is only going to get bigger, and soon it will outstrip the capacity of the people being trained to manage it. And the job doesn’t simply involve crunching numbers, but also analysing (transforming and processing) data in a way that renders it useful. While the industry has created jobs, it needs people who can find innovative ways to efficiently utilise this humongous amount of data.

How data has changed in the past decade

“What has changed is how we manage and mine that data. Traditionally a lot of data that we had was transactional in nature. Today, we store data which is very different in the way it’s captured – like social media and machine-to-machine data”, Kamal elucidates. This sensory-based data is being captured not on an hourly basis, but every millisecond.

The data today has multiple dimensions, so organ-

The scale of data

- 1 Bit = Binary Digit
- 8 Bits = 1 Byte
- 1024 Bytes = 1 Kilobyte
- 1024 Kilobytes = 1 Megabyte
- 1024 Megabytes = 1 Gigabyte
- 1024 Gigabytes = 1 Terabyte
- 1024 Terabytes = 1 Petabyte
- 1024 Petabytes = 1 Exabyte
- 1024 Exabytes = 1 Zettabyte
- 1024 Zettabytes = 1 Yottabyte
- 1024 Yottabytes = 1 Brontobyte
- 1024 Brontobytes = 1 Geopbyte



Investment in Digital Universe (IDC Digital Universe Study 2011)



Luxottica Glass

Google ties up with luxury brand Luxottica to release new Glass models
<http://dgit.in/LuxGlass>



Chrome Now

Google Now notifications will be available on Chrome desktop browser
<http://dgit.in/ChromeNow>

Work @ tech

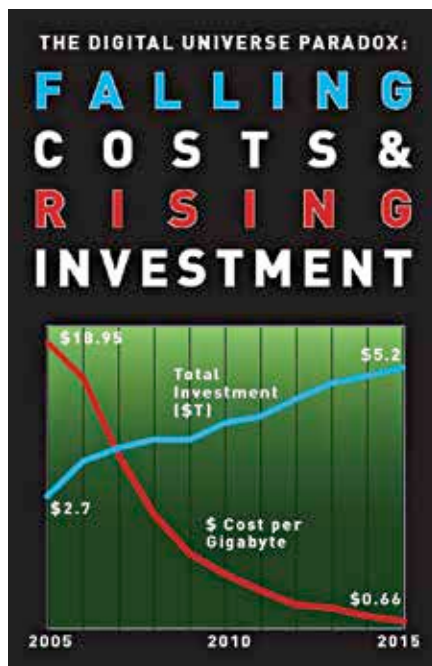
ising it requires a different approach. For example, people are complicated; they have friends, a transaction history, tweets and a plethora of other social media components, which form a rich complex structure that you need to understand and analyse. The software that you use should allow you to quickly inject the data into the data store, and allow it to have an analytic framework around it. It should be able to quickly retrieve data that's important to you.

The evolution of data has led to the development of new database platforms such as Hadoop and NoSQL, which meets the above requirements. These platforms are designed to store large volumes of complex data, which don't nicely fit into tables. Presently there's high demand for online and mobile data storage, which has also affected the hardware being employed to keep large volumes of data online rather than moving them to archives.

Why Database Administrator?

A Database Administrator, or DBA, manages the database in a way the industry demands. To do so, he uses his programming and administration skills. We mean that the database administrator is responsible for the installation, configuration, upgrade, maintenance and security of an organisation's database. The overall goal is to keep the servers up and running at all times and provide the users with access to the required information when needed. The DBA must protect the database from damage – accidental or intentional – and minimise the chances of data loss. While this is the traditional role of a DBA in an organisation, modern times call for more. Now just getting the required information isn't enough, the database admin must find a way to efficiently exploit the information. "In a time where everything in this world relies on data, and that too digital data, we can't compromise on accuracy and timeliness, when the slightest lack of precision or delay by microseconds may cause a company to lose millions", says Avinash Mathur, an Oracle DBA for a reputed IT consulting firm.

"The role of a DBA is evolving", explains Kamal. Traditionally, it was about managing a stable, relatively slow moving technology, which is the relational database.



Digital Universal Paradox (IDC Digital Universe Study 2011)

Today, a DBA has to deal with many aspects and not just administration. He continued, "Their role is moving towards making decisions on how they can manage more complex systems built on Big Data technologies, that encompasses things like Hadoop, NoSQL-based MongoDB, and potentially existing legacy relational data stores."

Competencies required for DBA

If you're considering a career in databases, you must be skilled in Structured Query Language, or SQL, as it's more commonly known. SQL is a programming language designed especially to manage and access data in a relational database management system (RDBMS). What is an RDBMS, you ask? A relational database is the most common database model that we've all used at some point in our lives. The spreadsheets that you make are a befitting example of a relational database. If you haven't heard of it before, don't worry. RDBMS is just a fancy term geeks use to refer to a collection of tables, in which data is organised in rows and columns. A database administrator is expected to know about popular relational database systems such as Oracle, MySQL, Microsoft SQL Server, PostgreSQL and IBM DB2.

Relational databases are the most common and convenient way of organising data. However, there's an increasing demand for other tools to manage data, since it isn't always feasible to organise data into rows and columns. Oracle DBA, Avinash tells us that there are various other tools available in the market for Big Data analytics:

- Hadoop
- NoSQL Database
- Pentaho Business Analytics
- Karmasphere Studio and Analyst
- Talend Open Studio
- Skytree Server

Apart from these, a database administrator should have a good understanding of the operating system and network architecture (client/server, intranet/internet, etc) he'll be working on. Companies want to hire "developers who have an understanding of the different data storage techniques and the type of technologies that are used to build applications", according to Kamal.

Everyday responsibilities

Let's talk in detail about the job responsibilities of a database administrator. This will help you get a good picture of what sort of work your duty will entail.

- Database administrators decide who gets access to which part of the database by assigning privileges to the end users, specific to their needs. He implements authentication and authorisation mechanisms to establish security of the database.
- He allocates the storage for the database in co-ordination with the IT department of the organisation. Both, present and future needs of the company are kept in mind when planning the storage capacity of the database.
- Database administrators should be well aware of the functioning of the database management system, and tackle all the technical problems that may arise.
- He writes and continually updates the documentation for the database. A database with an inconsistent or obsolete documentation is difficult to maintain – especially for people who didn't originally design it and will be working on it in the future.



Knock on G2/G2 Flex

The KnockCode feature will be included on the G2 and G2 Flex models <http://dgit.in/LGKnock>



SpaceX Dragon launch

The Dragon spacecraft will be launched on March 30 to resupply the ISS <http://dgit.in/DragonLaunch>

- A highly crucial duty of the administrator is planning the backup and recovery of the database. He should strive for high availability of data.
- Providing information that the user wants (and in the required format) is one of the main responsibilities of the database administrator. In order to fulfil this duty, s/he must integrate various software tools with the database system.
- They understand the client's requirements and interact with the design team to create a database as per the former's needs. The DBA must have good communication skills to understand what the client wants and convey it to the designers.
- They assist the end users (the clients) in using the system.
- Database administrators also manage metadata, which is the information about the database itself, rather than the data that it contains. DBAs have complete access to metadata, allowing them to change the database design.
- Administrators are superusers of the database, which means that they have full access to all the data and the authority to change it. They should exercise this privilege with utmost care and precaution.
- In a team of DBAs, s/he must act as a mentor to those in the lower levels of hierarchy.

Academic requirements & certifications

To embark on a career as a database administrator, a Bachelor's or Master's degree in Computer Science or Information Technology or BCA/MCA is a good place to start. Some employers may require a Master's in Business Administration (MBA). The industry always requires people who understand both, marketing and IT.

"A DBA needs to have a solid foundation of engineering, but he would need to take additional certifications which will help him learn a specific technology, like MongoDB or Oracle", Kamal shares. If you want to specialise in database technologies, various certification programs such as OC Certification (Oracle Certifica-

tion Program <http://dgit.in/1ghJxBA>) and MCDBA (Microsoft Certified Database Administrator <http://dgit.in/1iJRBu6>) can help you.

You can do certification courses in Database Management, and related fields from NIIT or other such reputed institutes. Based on your circumstances, you can opt for either correspondence or full-time certification programmes with flexible timings. Go to <http://dgit.in/1dwr5iV> to make your decision on a course easier.

Although a formal degree in computer science is not required to perform this job, most companies hire professionals with

manage. With global outsourcing, it's rare for a DBA to work in a 9-5 job, in India in particular. Avinash, a Lead Oracle DBA himself, says that "handling databases is a 24x7 job. You can look forward to shift work and support on call if needed. You might even have to work weekends".

The remuneration

Income is usually a major factor in choosing a career. While Digit advocates doing what you love and loving what you do, we all want to be paid well in our jobs. Unfortunately, in our country, database administrators aren't paid as well as in



RDBMS with tables

comparatively advanced degrees and specialisation, with their pay scales adjusted accordingly. Low-level jobs that don't require formal education are outsourced and don't pay well.

What to study?

When selecting courses during your degree go for Data Structures, Database Management, Data Warehousing, Algorithms, Operating Systems and Operations Research, which teach students complex decision rules and their application on real data sets. Also, advanced courses in Statistics may also be useful in data analytics. Apart from all these, a DBA must have sound understanding of basic programming concepts and familiarity with related technologies, mainly Java (JDeveloper, J2EE, Apache).

Expected working hours

As a database administrator, your working hours depend on the type of systems you'll

developed nations such as the U.S. Talk about the hardships of a developing nation.

According to Kamal Brar, your salary is subject to your place of graduation as well as the type of organisation you joined. A research report (<http://dgit.in/1di9tgc>) by PayScale, informs that a database administrator in India earns anywhere between ₹1.8 lakhs p.a. to ₹9.8 lakhs p.a., if you're working with companies such as Accenture, Cognizant, Infosys, TCS, IBM, Wipro, Tech Mahindra and the likes.

In the end, it's a competitive market so a highly inclusive skill set coupled with years of work experience will ensure higher pay and likelihood of being hired. In today's IT sector, nothing is isolated and you must have comprehensive knowledge about all the related fields. Here, we're not implying that you should be a jack of all trades and master of none. Your skill set should fundamentally revolve around databases.

YESTERDAY

DR. WILL CASTER

WAS ONLY HUMAN

J O H N N Y D E P P

TRANSCENDENCE

APRIL 18
IN THEATERS AND IMAX

ALCON ENTERTAINMENT PRESENTS IN ASSOCIATION WITH DUNE ENTERTAINMENT A STRATEGY FIRST FILM PRODUCTION A FILM BY WALLY PFISTER JOHNNY DEPP MORGAN FREEMAN "TRANSCENDENCE" REBECCA HALL KATE MARA CILLIAN MURPHY COLE HAUSER AND PAUL BETTANY
WRITTEN BY MICHAEL CANNON PRODUCED BY STEVEN ANDERSON DIRECTED BY GEORGE C. LOUPE EXECUTIVE PRODUCERS DAVID ROSENBLUTH & CO. PRODUCED BY JESS HALL WRITTEN BY WILLIAM T. COCHRAN STEVEN P. WEINER REGENY BATES PRODUCED BY CHRISTOPHER NOLAN EMMA THOMAS DAN KUNITZ
CASTING BY ANDREW A. KOSOVE COSTUME DESIGNER KATE COHEN MUSIC BY MARISA POLVINO EDITOR ANDRE MARTEL EXECUTIVE PRODUCERS DAVID VALDES PRODUCED BY ANDREW RYDER PRODUCED BY JACK PAGLEN PRODUCED BY WALLY PFISTER

TranscendenceMovie.com

PVR PICTURES

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Apple doesn't like Bitcoin

Apple removes Blockchain, the last Bitcoin wallet app from the app store. <http://dgit.in/BTCnoIOS>

Stick out like a sore thumb

And maybe you'll get noticed says a research study that analyses subtle cues that help nonconformists break from the pack and thrive: <http://dgit.in/bdiffnt>

Sameer Parwarni, Founder & CEO of CouponDunia.in

We speak with India's leading budgeting website, that helps users find the best deals on various e-commerce websites.

Vishal Mathur

vishal.mathur@thinkdigit.com

We speak with India's leading budgeting website, that helps users find the best deals on various e-commerce websites, including the likes of amazon.in, Flipkart, Myntra, Zovi and Infibeam, including many others. We speak with Mr. Sameer Parwarni, Founder & CEO of CouponDunia.in, and get an idea about the journey, the challenges and the future plans.

1 In a market crowded with e-commerce websites, how does CouponDunia.in plan to get the customer's attention?

To begin with, CouponDunia is not an e-commerce website. We're a coupon website. For virtually every e-commerce store in India, we list coupons and offers that can be availed to save on a purchase. These coupons and offers are all free. Everyone loves saving money so the response we've received in the market has been excellent. We can boast to be the most popular coupon website in India due to our focus on helping people save money.

2 Can you tell us something about CouponDunia's journey? And what is the vision for the future...

I started CouponDunia in December 2010 while living in the Boston area. Running a site for Indian consumers while in the USA came with a whole set of challenges. It was virtually impossible to hire people and totally impossible to meet clients. Even calls were tough due to the time difference. I hadn't ever lived in India, hadn't visited India since 2004, and didn't speak Hindi so there were even cultural issues to overcome.



Sameer Parwarni
Founder & CEO, CouponDunia.in

But despite these issues we did really well. On the people front we hired contractors in the Philippines to add coupons. I became virtually nocturnal to have as much time as possible to deal with clients.

It then got to a point where it became clear that I needed to shift to India to allow CD to reach its full potential. So I finally moved here in August 2012. From there we've grown even further. At that point we had 4-5 employees and now we have almost 40 and have expanded our operations into 4 new countries.

Going forward we plan to continue to expand internationally. Our domestic plans are to go from distributing coupons that can be used offline.

3 How does CouponDunia generate revenues?

It's a pretty straightforward business model. We send our users to our partner merchant sites where these users make purchases. For every purchase made by a customer sent by us, the merchant pays us commission.

4 Can you give us some numbers on CouponDunia's registered users? Among them, which is the most active demographic?

We have almost 10 lakh newsletter subscribers and over 1.7 million monthly visitors. The most active of these users are usually males between 25 and 31 years of age.

5 Which categories of products and which website deals are the most sought after on your portal? Please share some figures also specific to gadget categories.

Electronics is definitely the most sought after category. Last December, our users bought about 2.5 crores worth of electronics from Flipkart alone. Fashion and travel are also very popular. Coupons that are applicable on all products or multiple categories do really well as the user has a huge range of options to choose from.

6 What is your strategy to take on the competition?

What differentiates us from our competitors is the quality and accuracy of our content. We're constantly striving to provide a better user experience through design and algorithm upgrades as well as exclusive discounts. Since we have the largest audience of discount seeking users, merchants are more willing to share better coupons with us than our competition.

7 Does CouponDunia have any role in the buyer-seller interaction/transaction? Do you take any measure to ensure validity and safety of transactions?

We make transactions more likely to happen by ensuring consumers get a good value. Shoppers hesitate to buy due to the unknown of whether they are getting a fair price or not. We take that fear away and hence more sales happen. **4**

Interview with VA Shiva Ayyadurai – creator of EMAIL

We sit down for a chat with the person who gave email it's current form.

Mithun Mohandas

readersletters@thinkdigit.com

So how did you go about coming up with EMAIL?

The first part of the book talks about this whole journey. And at the Email is this business communication system. And because of that it's a formal messaging system and I called it EMAIL. In Fortran they had a naming convention where all variables had to be in uppercase and 6 characters only. And the OS was the HP OS called RT4 and that had another constraint where if you wrote a program, the program name could only be 5 characters, so I called it EMAIL. It was not an obvious term, infact when I wrote it I thought maybe I should call it EMALL. I didn't know how to pronounce it, if it were 9 characters then I'd have called it Electromail.

It wasn't a simple program, it was 50,000 lines of code. And we worked on 64K memory and we had to have another layer to perform memory swapping. And it had a nice UI because we had to convince secretaries who'd never seen computers. It wasn't like morse code and it had to be made easy. It didn't have GUI but we had an easy to use interface and one of the things it had to be was bullet-proof. That was one of the mottos when we wrote code. So we used a relational database and we'd never transport the message but a pointer. So one of the ideas was that we'd save the message only once. And for that I won one of those awards it was called the Westinghouse awards, today it's called the Baby Nobles. Back in 1978 no one knew what software was since it was new. The copyright act of 1976 was amended in 1980 to support copyright of software. So I got the first



VA Shiva Ayyadurai,
the creator of EMAIL

copyright for EMAIL - computer program for inter-office mail system.

So how do you see email evolving?


What we're going to start seeing are more gestural stuff and that's going to change the way we're going to interact with devices. And I don't think it's that long ahead where you're gonna see more and more signal processing occurring looking at thoughts. At some point in the future we're gonna be able to map what we're thinking and it's going to be a very different world where we'll see more devices like google glass.

Email is very insecure, what's happening on the security front?

In corporate areas they have two types of email, one is the open email and the other is secure email. They'll have a normal interaction where you'd be sent a non-secure email and that would tell you that you have a secure email and that would send you to a secure server through private key or public key. And we're going to see more and more corporations move to secure mail and you'd

have a public key on your phone to access your email. And with quantum computing coming up, you could bust all these security systems overnight so these security systems will have to scale accordingly.

So what are you working on currently?

In 2007, a new field developed called system biology. After the genome project ended in 2002, there have been some fascinating experiments where they've changed conditions and you could turn on or off certain genes. So when you eat certain foods or meditate or perform certain actions that those phenomenon could turn on or off genes. I said to myself that I knew how to build large scale systems so why not create an electronic version of the human cell system. We called it Cytosolve. Then we had high throughput imaging started happening and since we could observe the rates of interactions in the human body. We could now calculate rate constants. So what if we could create the molecular pathway model of the human cell. So I took that up for my Ph.D. People in the wet labs had already done a lot of experiments so if you could combine these computationally and mechanistically then we should be able to model disease. So we looked at pancreatic cancer and looked at all the different studies done. So the strategy in cancer is to restart the normal apoptosis for cell and stop metastasis. We looked at the literature and we found all the different pathways that looked at apoptosis and built a model for the same and then we made a model for cellular proliferation. Then we looked at all the existing generic drugs and with a combination we were able to lengthen the proliferation cycle. So with a hybrid approach we were able to reduce the dosage of these drugs. So by looking at everything like a system we were able to do something. 

Community

Follow our thriving communities on facebook, twitter and our forum and you just might get featured here

Slack off!

...but productively. Here are some constructive ways to waste your time online.

Wondrous Weapons

Wartime is a hard time for humankind, but it's also a time for invention, a time where genius and madman walk hand-in-hand bringing to life their (sometimes) warped creations to life!

**Bat-shit crazy**

You might call the American armed forces batty, but you have to give them points for trying. A dentist suggested that the USAF strap timed incendiary devices to bats and unleash them on a hapless Japanese populace. As a weapon, the bats proved themselves to be singularly uncooperative and set even set ablaze their home base.

Look! A Komet!

How is this for a proposal? You're a top of the line pilot employed by the world's best air-force who is then asked to strap himself to an experimental rocket-plane that might blow and jettisons its wheels on take-off and can only fly for eight minutes before running out of fuel and then has to glide back to Earth and land on skids. That's the ME 163 Komet for you.

**Something's screwy here**

Innovative means of propulsion are well and good, but what works for certain types of boats will most certainly not work on land. The Russian corkscrew tank concept proved itself to be surprisingly effective on snow, but would literally grind to a halt on civilised city streets. Russia, it's time to stop screwing around. For good.

**Bazooka Vespa**

What's a Frenchman without his scooter? Too lazy to build tanks, or even four-wheeled vehicles, the French decided that it'll be a good idea to mount a 75mm recoilless-rifle on a scooter. Imagine the ignominy of getting shot by a serious looking Frenchman bearing down on you on this Vespa, hurling frustrated French invective in your general direction!

Balls of steel

Trench warfare bogging you down? Then why not just build a steel ball, load it up with a handful of troops and stick a few machine-guns onto it and let it roll to the enemy. A simple enough concept in itself, till you realise that the tank is literally a ball of steel. There isn't even a viewport for the gunner. Thankfully, the project was scrapped at an early stage.

**Liberate yourself**

The FP45 was the most awkward pistol ever conceived. It only held one shot and was limited to a range of 25 feet. If you missed that one shot however, you were required to open up the breach, shove a dowel down the barrel, eject the spent casing, insert a new bullet and close the breach. All this while a furious opponent is pumping you full of lead.

Movie Madness

Having trouble populating your bucket list? Here's a 1000 movies to see before you die! <http://dgit.in/1ixeD6W>



SALE! SALE! SALE!

Ashampoo is offering WinOptimizer11 at 50% exclusively for you, dear reader. <http://www.winoptimizer.com/>

Unwind

How we unwind



A larger Vu

We thought we'd seen it all when a 55" Vu TV passed through our office a while ago, but when the 65" Vu dropped in, we dropped everything we were doing and just ogled at the awesome glory of that display. As usual, our meal times are never complete without some sort of HD content gracing that lovely screen.

Audio extravaganza

There's a set of speakers that we've all been harping about and eyeing for many months now and when the distributor decided to cut a deal for us, we pounced on the offer, ordering half a dozen of them. We're now fastidiously blowing the roof of our homes and keeping the neighbours awake at night.



Yay! It's party time

We are an anti-social bunch at Digit and we'd rather be enjoying a game of Quake than sitting around socialising. However, with the directors breathing down our collective necks, we had to present ourselves at the office party. We did have a surprising amount of fun however, so all was not lost.

digit DIARY

Things took a turn for the surreal this month. With action around every corner, the team found themselves a bit winded and disoriented. With the team down to its last tether in manpower, the road has been rough but as you've got yourself a magazine to read (we hope you've got yourself a magazine to read), things turned out just fine.

On a brighter note (450 lumens to be exact) a 65" VU TV dropped by, hijacking our meal times and ignominiously ejecting Mithun from his corner of the office (the price of hooking up a TV to your PC).

While Mithun crooned over his 65" toy, the gloom over the Ant's departure still loomed over our team. Even the rats seemed to have forsaken us in mourning but the real loss, that heart-clenching, tear-inducing loss, was felt by our now seemingly benevolent leader. He spent the first couple of weeks in a daze, sluggish and slow, expressing little interest in life, only venting his frustration in the dozens of laps that he churned out at his favourite swimming pool. Sid isn't one to take things lying down however (editors are made of sterner stuff than the average human) and went and got himself a girlfriend, who was probably attracted by his unusually stern demeanour, but we digress. As the saying goes, everything happens for a reason (note that the name of said woman has been withheld to avoid backlash from his secret admirers congregating in common cause).

Not all seem to be in mourning however, especially Raaabo, whose first decree was proclaiming exclusive rights over the rig of the dearly departed. After exterminating the Ant infestation from the rig, he proceeded to complain about internet speeds and badly placed windows keys in over-ex-

pensive mechanical keyboards while simultaneously crooning over the joys of having a real PC at his fingertips. True geeks never change.

In the middle of all this joy (and some sorrow) Regidi and Pony seem to be having a horrible month, overall. Regidi was assigned bed rest after pulling a badass Bloody Mary (bled from his eyes for days, or at least that's what the rumours say), he still managed to walk into work once in a while and single-handedly saved the cover story whilst sporting his bloodshot eye, completely unfazed. A Rambo amongst geeks, this one.

As bad as a subconjunctival haemorrhage might seem, the Pony's tale was more disturbing. <hushed whisper> He's told this to us in the strictest confidence of course, and we ask you to do the same </hushed whisper>. It turns out that during one of our all-nighters the Pony was caught with his pants down, literally. An impromptu trip to the crapper found the minion stuck inside with no water or toilet paper at hand. After weighing his options, our worthy minion decided that his best bet was to make a break for it, a quick and stealthy dash (it was the middle of the night after all) to the WC at the other end of the office for much needed supplies. The picture of him loping across the balcony in almost all his naked glory is something we shudder to contemplate, but it's something we would have never had the guts (or rather, had more sense) to do. Either way, the dash was accomplished speedily, stealthily and successfully (the six hours spent playing Thief had something to do with it).

It's been an exceptionally mad month and things will hopefully return to a modicum of normalcy next month.

HTC One Minimalist

HTC One will be available in a minimalistic version as well on launch. Intrigued? Read on to know more: <http://dgit.in/htcmmini>

Rumr

Here's a new app on the market that allows you to chat with your friends anonymously <http://dgit.in/rumrapp>



This month we highlight some aspiring tech writers and their spirited attempt to get published in the magazine. Let's have more!

Ten cool Developer tools that you probably didn't know existed

Mohit Chhabra

Every Web Developer wants to be productive, save time and hassle. So here's a list of free tools that you probably didn't know existed.

Responsive Design Check

(<http://www.mattkersley.com/responsive/>)

With multiple devices hitting the market, it's getting difficult for developers to support all form factors. This tool will help you check how your site will look in various iFrames. Ideal for previewing how your site will look on an iPad, iPhone or other devices.



Pages should adapt to the screen size

Mobile-Ready Evaluator

<http://ready.mobi/launch.jsp>

This tool generates a free report once you provide a site URL. It gives you both, a score (from 1 to 5) and an in-depth analysis of pages to determine how well your site performs on a mobile device. If the score is low, think about revamping the site since a majority of internet users access sites via mobile devices.



Is your site mobile-friendly?

Commission Junction

<http://www.cj.com>

Monetisation is important for every developer to earn his daily bread. Commission Junction is an alternative to Google AdSense (which is quite difficult to activate). Post ads on your site through CJ and start earning from your blog straight away.

Webpage Loading Speed Tester

<http://cloudmonitor.ca.com/en/checkit.php>

The last thing users want these days is to see your web page loading. This is a great tool to test your site speed from different parts of the world.

Privacy Policy Generator

www.generateprivacypolicy.com

Who wants to write those lengthy policies which no one is interested in reading? Use this free tool instead.



Easy legalese generator

Free Hosting

www.pages.github.com

Need free hosting for your site? GitHub gives you just that. All you need to do is get hold of a domain and point to your repository.

Place It

<http://placeit.net/>

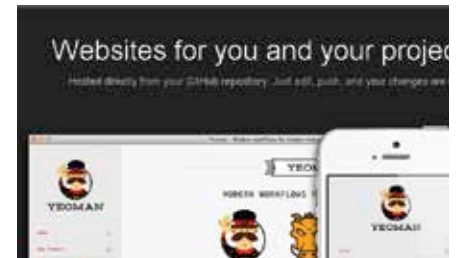
A free tool to market your product. You

can create workflows, create 3D images with Blender and still images in real scenarios.

Launch List

(<http://lite.launchlist.net/>)

An easy-to-use to do list tool for web designers and developers to check their work



Emulate your website

before launching any project. Just select yes or no on the basis of your project conditions and see if you are good to launch or not.

Picksum Ipsum

<http://www.picksumipsum.co.uk>

Bored of using lorem ipsum as a sample text in your projects? Try Picksum Ipsum, an alternative lorem ipsum generator that uses lines from famous actors! From Jim Carey to Morgan Freeman, everyone has something to say.



Dummy text for dummies

Google interview advice

Feel like landing a job at Google? Here's what it's looking for! Check out this article: <http://dgit.in/ggljobs>

Bioshock buried?

Check out this review of *Bioshock Infinite: Buried at Sea* if you're doubtful about the DLC
<http://dgit.in/biosbas>


Digit Squad

Head over to our **online communities** for some of the best discussions, buying advice and user reviews. Of course, you'll meet like-minded (and not-so-like-minded) geeks and have some of the most memorable discussions of your life: <http://dgit.in/dforumt>

19-03-2014, 12:37 AM

Raaabo

Busy Bee



Join Date: Sep 2003
Location: Mumbai, Maharashtra, India, India
Posts: 597

The Big Bang Theory, in all seriousness!

Given the past behaviour of some members, I figured might as well start this thread in Fight Club...

In case you haven't already read about it:

<http://www.wired.com/wiredscience/20...ysics-shakeup/>

Stephen Hawking claims victory in Big Bang bet - Telegraph


http://www.nytimes.com/2014/03/18/sc...bang.html?_r=0

Apart from sharing the news, I was wondering what people thought about this... does it change anything for you to know any of this?

19-03-2014, 01:16 AM

Anorion

Holy paladin of legitness



Join Date: Oct 2008
Posts: 2,042


Re: The Big Bang Theory, in all seriousness!

Prof Turok must have hunted a few dinos in his time

20-03-2014, 04:40 PM

DeSmOnD dAvId

Persona Non Grata



Join Date: Apr 2005
Location: Realm Of Khorne
Posts: 2,926


Re: The Big Bang Theory, in all seriousness!

But if there is a multiverse, then would it not be valid to say that there have been a number of Big Bangs? Each forming its own universe, its own time and its own space?

20-03-2014, 06:02 PM

AbhMkh

In The Zone



Join Date: Oct 2013
Posts: 229

Re: The Big Bang Theory, in all seriousness!

There is a theory which says that our dreams are images of what our alternate selves are doing in the parallel and alternate universes !


For every choice we make, every decision we take there exists a parallel and alternate universe where we have taken a different decision !

A multitude of universes bending the very fabric of space and time !.

20-03-2014, 06:19 PM

Sarath

iDota



Join Date: Apr 2011
Location: Bangalore, Karnataka, India

Re: The Big Bang Theory, in all seriousness!

Originally Posted by DeSmOnD dAvId

But if there is a multiverse, then would it not be valid to say that there have been a number of Big Bangs? Each forming its own universe, its own time and its own space?

What if that other universe is independent of the big bang in our universe?

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DSK Supinfocom International Campus

IN PURSUIT OF A CAREER IN VIDEO GAMES

A career in video game is often misunderstood. Many people assume that it leads to a job where one gets to play video games all day long. However, this perception depicts the people's unawareness of the gaming design industry and its potential. The year 2013 brought with itself more than 500 game title releases with compatibility spread over 21 gaming platforms. Considering that it takes roughly two years for a game in its production pipeline, that itself speaks volumes of the amount of work global game design teams put into these game projects. Of the total consumer spend on the gaming industry of \$20.77 billion in the year 2012, \$14.8 billion is simply on the content. To summarize, there is no other sector in the world that has experienced the same explosive growth as the video game industry; an opinion shared by reputed industry experts. A career in this highly competitive industry is bound to be challenging but immensely rewarding at the same time.

Creating a game of any level is about as difficult as filming a feature-length movie. While one can make the basic frame for a game without detailed technical knowledge, one will find it very difficult to design the details of the game without a degree in game design and practicing the various other basics associated with it. Storyboard ideation, thorough research, characterization, designing the gaming environment, figuring out the compatible platforms, coding the artificial intelligence, making extensive use of the game-play theory, and designing the right balance between surreal graphics and aesthetics still constitutes to only 50 per cent of the total activities involved in a gaming project. This followed by continuous upgrades and patch releases to keep the game in sync with the real-world changes makes up for a massively enriching project life cycle.

This career is therefore not for those who can only dream and play games throughout the day but is aimed at people who can add astounding

amounts of hard work, dedication and acquire design skills to be successful video game designers.

Similar to stereotypical professions like Engineering, Medicine, and Pharmacy amongst others, Video Game Design requires one to master the art of dreaming, planning, designing and creating the games for different audiences. Designing the video games for computers and specific game consoles can then be another choice of specialized skill set on the path to a challenging and rewarding career. This is where you need specialized coaching and experts in the field who can guide you towards your goal of having an impact in the video games industry.

The DSK international Campus curriculum follows an industry renowned process while offering the degree courses to the designers. With specialized degree programs in interactive media and game design, the course consists of comprehensive knowledge of the game-play theory. The course actively promotes and attempts to evoke imaginative and creative thinking as a talent development process. Each game design project involves a vast range of activities which are split up into different project processes. This gives the designers the chance to work collaboratively in diverse teams as well as use their skills independently during the project sessions. The multi-cultural diversity helps them in getting familiar with international work cultures

and global game design trends. A significant focus on good communication and presentation skills continue to add to their core abilities of game makers. The primary requisites are the emphasis on strong storytelling and narrative development skills with proficiency in maths and programming.

Specializations like Audio, Design, Production, Programming, Visual Arts and Business work together to weave different aspects together to complete a gaming product. As a graduate in the video game design profession, the designer could progress their career in Game Design, Art and Programming verticals. The possibilities are truly endless. ■

**CLEARING THE
MISCONCEPTIONS
REGARDING EARNING
A LIVING MAKING
VIDEO GAMES, AND HOW
DSK SUPINFOGAME
EMPOWERS YOU TO GET
AHEAD OF THE CURVE**

Don't blame the tech

I'm sure all of you have been following the tragic but mysterious circumstances of the disappearance of Malaysian Airlines MH370. Every one I know, including many of us here at Digit have been left flabbergasted by the sheer unexpectedness of this incident – how do you lose an airplane? This is 2014, right?

How does a commercial airplane, which has already been proven to be a potent missile by Al-Qaida nearly 13 years ago, drop off the sensors of not just regular air traffic control, but also military scanners? It did, after all, divert from its flight path, not respond to communications and had ACARS (Aircraft Communications Addressing and Reporting System) and its transponder turned off! Am I the only one who pictures frantic war rooms and fighter jets being scrambled?

The latest news (as I write this) is that satellite data puts the last known location of the plane somewhere in the southern Indian Ocean. Given how hard it is to salvage anything from the middle of an ocean, we have to accept that we may never have satisfactory answers for what really happened. Technology has failed, spectacularly, or has it?

Take the simple example of the ACARS system, which is basically a text-based system that tells ground control the location, speed, altitude and direction of a flight. Why should such an important system have a switch or circuit-breaker that a pilot can throw on or off? Aren't we giving the pilot of a plane way too much power? Controls, yes, I wouldn't want to be in a plane flown by wire from the ground. Give me a human pilot any day, but allowing them to turn off critical tracking systems? Perhaps there's some logic for it, but I think it's time to re-look at established logic.

The transponder is another example of technology that needs improvement, because it relies solely on ground-based devices asking it a question (in machine language) to which it responds. The range is limited however – about 100 kilometres. As long as you're flying over populated land masses, the transponder works well, but over large bodies of water it is pointless. Again, pilots have a simple switch to turn the transponder off, even in mid-air, why?


While the black box is mostly foolproof, it only records the status of equipment detecting whether there's been a mechanical or system failure – but in this case it might read something like, "All systems go. Cause of crash: ran out of fuel". What answers about MH370 does that give us? Nothing.

That's where we turn to the cockpit voice recorder for answers, which, however, might also be useless, because the voice recorder only records the last two hours of conversation between the pilots, and not the whole journey! Why? Because we've convinced ourselves that crashes happen immediately after a problem, and thus two hours suffice.

I'm aware that such systems have a myriad level of complications when being designed, but still, surely even a few GB of storage can record an entire flight's conversation! I can record 100 hours of HD video on my cheap DVR, but planes that cost tens of millions of dollars can record only two hours of audio?

I guess there are two major reasons this story has struck a chord with me:

First, I belong to a family who has grieved a relative "lost at sea", and thus I can relate to the pain of the families of those on board MH370. Back then, I was asking how 21st century, multi-million dollar merchant navy ships still don't have basic technology such as CCTV cameras observing the deck to make sure that just in case someone fell overboard, the company would be able to provide proper evidence of what transpired. The technology exists, is used all around us, but sometimes isn't implemented where it's needed most.

Second, because at about the time MH370 went missing, I booked a holiday to Australia for my family on Malaysian Airlines, flying Boeing 777-200s... 



Robert Sovereign-Smith
Executive Editor
robert@thinkdigit.com

"I can record 100 hours of HD video on my cheap DVR, but planes that cost tens of millions of dollars can record only two hours of audio?"

Liked or hated this column?
Write in to
robert@thinkdigit.com
and let me know your thoughts.



More martian water?

NASA's HiRISE finds another gully on the martian surface and possibly existence of liquid water <http://dgit.in/Mars20>



Sea fossil

New fossil points towards a massive sea turtle that lived 75 million years ago <http://dgit.in/SeaFossil>

Slack Off!

Prakrit Dhondiyal

readersletters@thinkdigit.com

You can either sit in your cubicle all day liking pictures off your facebook feed, scan 9GAG for a few chuckles or you can take a leaf from our book and look deeper for something more meaningful. We've decided to put together a list of websites that put a little bit of constructiveness into slacking.

For DIYers

Most websites for DIYers have rather obvious titles. Take this one, for instance:

How To Do Things (<http://bit.ly/zeu5BM>). This is a website that teaches you how to do things (no \$#!t, Sherlock!). From subjects ranging from 'How to throw a great birthday party' to 'How to make a wind chime from spoons' to the unconventional 'How to fart silently' and 'Where to stash your... ahem... sandwiches.' Other than some very entertaining articles, How to Do things does serve to help in unusual situations when you don't know where to turn.

Wonder How To (<http://dgit.in/wonhto>) is a similar website for most people who like doing things themselves, or simply spend their time wondering how to do anything on their own.

If you're interested in personalized DIY options, but don't really intend to put your own blood sweat and tears in the mix, **Fiverr** (<http://dgit.in/fyver>) is a place where you can hire people for their posted services for the minimal charge of \$5. Graphic designers, songwriters, marketing and advertising professionals, you name it. It's a hub for people to hire freelancers for projects at affordable prices. A go-to website for both, the people hiring and the people hoping to get hired.

For the Readers out there

How fast can you read? Sure, it may be 800-900 words per minute, but reading without understanding or retaining is a fundamental mistake made by a lot of readers. **Spreader** (<http://dgit.in/spreadr>) is a basic speed reading software that helps you increase your reading along with comprehension speed.

Live and Learn

This is for all the nerds in the house. Some people consider a constant source of information as a source of entertainment, these knowledge-addicts decide very naturally to do something very obviously constructive in their free time, and are not reliant on educational games or activities to keep them hooked on. To these people, studying and learning is a relaxing task in itself.



Big Think - Changing the way you think

Sometimes, when you're bored, you may not really have any time to waste. But you need to get out of your work rut and distract yourself with a short story or maybe even a small sonnet. **Classic Short Stories** (<http://dgit.in/claslrts>) is a website with a widely appreciated collection of some of the world's most famous short stories. So if you're a reader, give this website a gander.

Poem Hunter (<http://dgit.in/pohntr>), on the other hand, is a comprehensive online database of published poetry ranging from the classic to the contemporary. Whether you're looking for John Donne and Shelly or Ray Carver and Paul Auster - Poem Hunter has it.

Some websites offer distance learning courses, educational videos and experiments for people to watch and learn.

Khan Academy (<http://dgit.in/khnac>) has been popular since its inception back in 2006. It has become even more popular since then. The resources of Khan Academy are available for free to anyone around the world and has a reach of over about 10 million students and has delivered over 300 million lessons till date.

Ted Ed (<http://dgit.in/tedEdu>) is the youtube channel maintained by TED (Technology, Entertainment, Design) the non-profit devoted to ideas that are worth spreading. Ted Ed, similarly, is a youtube



Safe nuclear storage

Californium, a fringe element is quite resistant to radiation damage and could improve the way nuclear waste is stored <http://dgit.in/NukeCf>



Designer space suits

NASA wants you to pick their next space suit's design from among the latest prototypes <http://dgit.in/NASASuits>

Feature

channel made for the sole purpose of educating people worldwide. Though more professionally-based, this TED channel propagates interesting and probable theories. It's a fun visit.

Draw Space (<http://dgit.in/drwspac>) is an online portal meant to help budding artists learn the basics of drawing and sketching. It is a massive library of free and easily downloadable lessons. These lessons have been authored by world-renowned speakers. Draw Space is a community that consists of over 3,20,000 drawing enthusiasts, professional artists, art educators, and authors of art books.

DuoLingo (<http://dgit.in/dulng>) is a website and an app to learn more than 18 different languages ranging from Italian, Portuguese, Spanish to Korean. Duolingo encourages self-education, and pushes you teach yourself a new language. Definitely a constructive use of your time.

Big Think is a website that stands as a constantly evolving road to the best thinkers across the planet — it stands as a valid testament to the ideas that can help people think flexibly and act decisively in the big, bad ever-expansive world. Always fun to read, with articles spanning various philosophies and life lessons.

Learning through entertainment

There's a lot to be said about learning new things through the medium of entertainment. Studies show that game-based learning surpasses traditional methods of learning (<http://dgit.in/gmbslrn>) with respect to some innate skill-sets like strategising, hand-eye coordination, etc. Similarly, the smart usage of audio-visual medium also proves extremely effective (<http://dgit.in/mmrlrn>) with respect of information retention and memory enhancement. Keeping all this in mind, there are some ways the internet can be used to find educational entertainment – specifically, methods that can be used as a source of entertainment and learning.

Unplug The TV (<http://dgit.in/unplugTV>) offers an alternative to television programming. The website is a simple page that flashes random videos for you to watch as an alternative to the terrible material that is shown on TVs today. The subjects of these videos range across random well-made web series, educational material, short documentaries and sociocultural videos.

Keyman (<http://dgit.in/keymangame>) is a typing game based on Pac Man. The difference is that Keyman doesn't map specific keys for movement. Instead, it assigns random letter keys which change after every use. The result is players frantically hunting for the appropriate key to move Pac Man (or should we say 'Keyman?'). This game is handy for people who want to test their muscle memory when it comes to typing on a keyboard. A challenging game for people who want to practice typing efficiency.


Free Rice (<http://dgit.in/ldfM3pC>) is a non-profit website that is owned by and supported by the World Food Programme under the United Nations. As the name suggests, the web portal aims at giving free rice to impoverished countries. All you need is a decent Eng-

lish vocabulary. The site throws words at you with four options from which you have to select the synonym. Each correct answer donates 10 grains of rice. Improve your vocabulary and help out the needy in one fell swoop.

Any website that can make math fun has to be on this list. **Mathrun** turns math problems into a test of brain speed, refining your thought processes to think 'Math'.

Enrichment through Appreciation

js1k (<http://dgit.in/1iKHWCQ>) is a place for coders to test out their skills at javascript. What started off as a joke evolved into a reputed online competition. js1k asks coders to create something innovative using not more than 1 kB of Java code. And it has had some interesting results. From a lightweight chess program to a simulator for Luke Skywalker's famous Death Star run from 'A New Hope', this website showcases all the submitted entries for all to see.

Music Theory (<http://dgit.in/1fWmXds>) is a database for anything and everything related to musical research and theory. For people interested in technical questions about music, the site's a very useful source for information and articles. 



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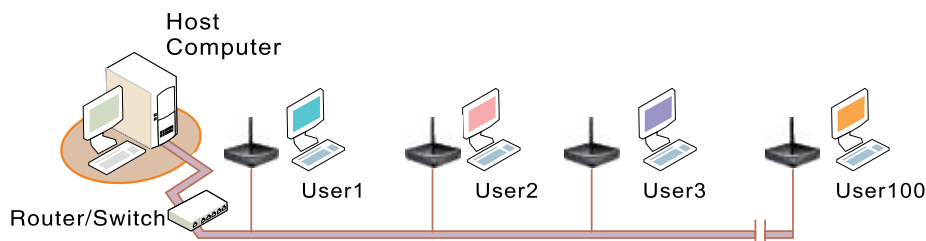
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Does not requires network
protocol time through internet for
login on WIN XP and WIN 7

■ Minimum system requirements of a Host PC

- 2.0 GHz processor
- 4GB hard disk drive
- 512MB RAM
- Operating system requirements
- Microsoft Windows or Linux
- Ethernet switch or router
- This product is intended to reduce hardware deployment and maintenance costs.
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- Does not support 3D games.

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